



HEAT RECOVERY VENTILATORS

# HRV

AIR 85-F  
AIR 135-ES  
AIR 205-R  
AIR 265-R

Installation Manual

## Pre-Installation Notes



### Note

- Due to ongoing research and product development, specifications, ratings, and dimensions are subject to change without notice. Refer to [www.airflowiaq.com](http://www.airflowiaq.com) for the latest product information.



### Attention

- Do not apply electrical power to the unit until after the completion of the installation (including installation of low voltage control wiring).
- Ensure the installation and wiring is in accordance with all local electrical codes.
- Plug the unit into a standard designated (120 VAC) electrical outlet with ground.
- The use of an extension cord with this unit is not recommended. If the installation requires further wiring, have a licensed electrician make all the electrical connections. The recommended circuit is a separate 15 A/120 V circuit.



### Caution

- Before installation, careful consideration must be given to how this system will operate if connected to any other piece of mechanical equipment, i.e., a forced air furnace or air handler, operating at a higher static. After installation, the compatibility of the two pieces of equipment must be confirmed, by measuring the airflows of the HRV, by using the balancing procedure found in this manual. Never install a ventilator in a situation where its normal operation, lack of operation or partial failure may result in the back drafting or improper functioning of vented combustion equipment
- Unit must be installed level to ensure proper condensate drainage. Due to the broad range of installation and operational conditions, consider the possibility of condensation forming on either the unit or connecting ducting. Objects below the installation may be exposed to condensate.
- Do not install control wiring alongside electrical wire.



### Warning

- Disconnect the power from the unit before cleaning or servicing.
- To prevent electrical shock, it is extremely important to confirm the polarity of the power line that is switched by the safety (disconnect) switch. The hot line (black) is the proper line for switching. Use either a voltmeter or test lamp to confirm the absence of a voltage between the disconnect switch and ground (on the cabinet) while the door is open. This procedure must be followed, as dwellings are occasionally wired improperly. Always ensure the proper grounding of the unit.
- Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer or service agency.

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## Homeowners Warranty Information

After the installation is complete, fill out the Warranty Information page in the Homeowner’s manual.



# 1 LOCATION NOTES

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Install the unit in a heated space that provides clearance for service access. A typical location is in either a mechanical room or an area close to the outside wall within proximity to where the weather hoods are mounted. If a basement area is inconvenient or non-existent, install the unit in a utility room or laundry room.

Leave enough clearance at the front of the access door for servicing the air filters and core. The recommended clearance is a minimum of 25 in. (635 mm) for opening and closing the door. Four straps are provided with the unit for hanging it from the basement floor joists.

Attic installations are not recommended due to:

- The complexity of work to install
- Difficulty of access for servicing and cleaning
- Freezing conditions in the attic

If attic installation is necessary, the unit must be situated in a conditioned space.

## Note: ENERGY STAR®

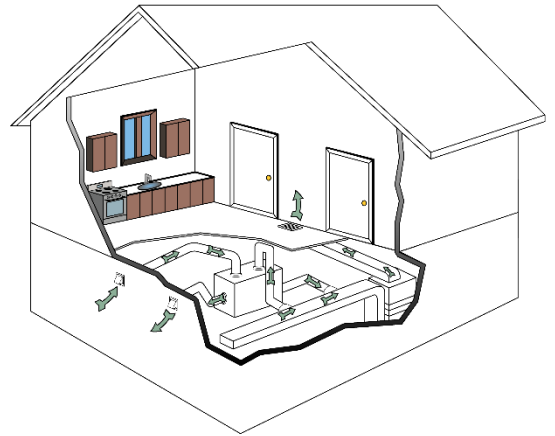
### **If the unit is certified ENERGY STAR®, the following applies:**

- This product earned the ENERGY STAR® by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. This product meets ENERGY STAR® requirements only when used in Canada.
- To ensure quiet operation of the ENERGY STAR® certified H/ERV, each product model must be installed using sound attenuation techniques appropriate for the installation.
- The way your heat/energy-recovery ventilator is installed can make a significant difference to the electrical energy you use. To minimize the electricity use of the heat/energy-recovery ventilator, a stand-alone fully ducted installation is recommended. If you choose a simplified installation that operates your furnace air handler for room-to-room ventilation, an electrically efficient furnace that has an electronically commutated (EC) variable speed blower motor will minimize your electrical energy consumption and operating cost.
- Installation of a user-accessible control with your product model will improve comfort and may significantly reduce the product model's energy use.

## 2 SIMPLIFIED INSTALLATION (RETURN/RETURN METHOD)

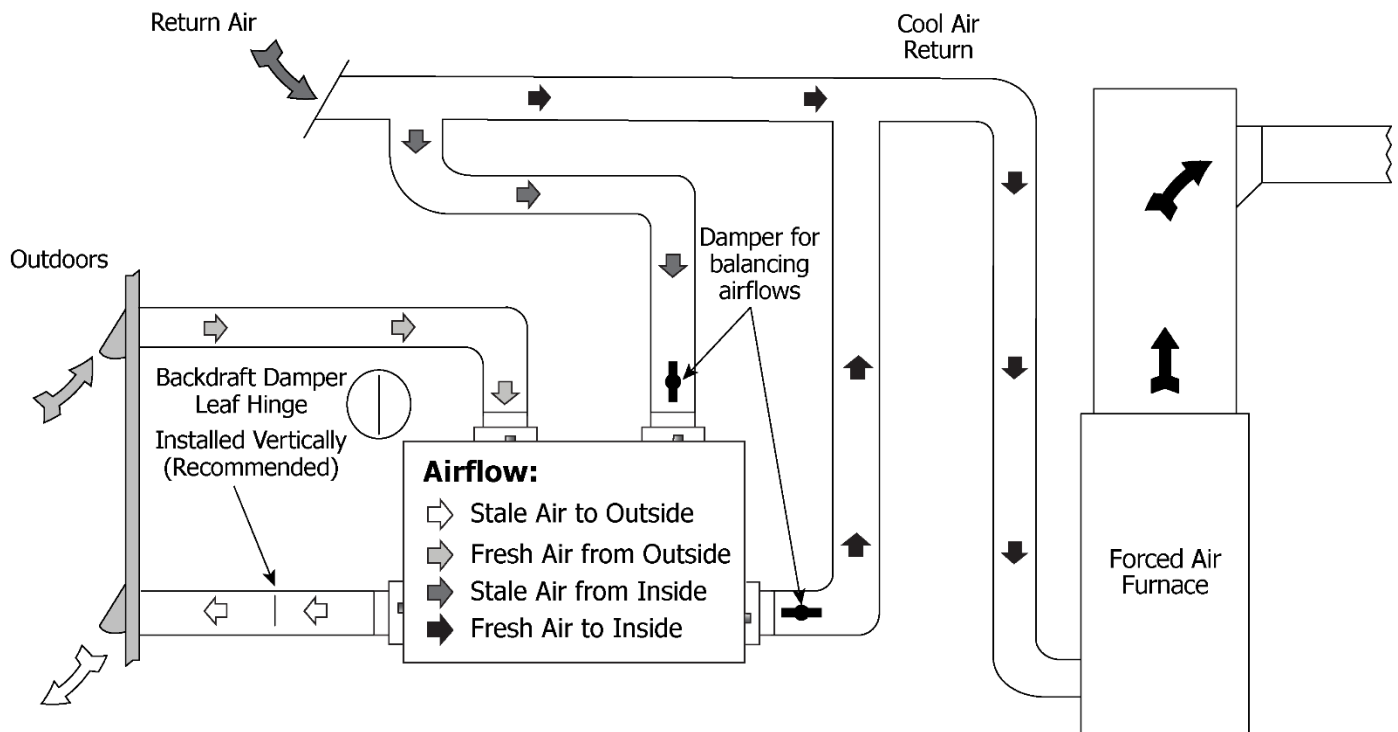
### Installation Notes:

- The HRV must be balanced.
- Unit should be balanced on high speed with the furnace blower on.
- It is mandatory that the furnace blower run continuously or HRV operation be interlocked with the furnace blower.
- The duct configuration may change depending on the HRV model.
- A backdraft damper is recommended in the exhaust air duct to prevent outdoor air from entering the unit.
- The airflow must be confirmed on site using the balancing procedures found in this guide.



### Spring-Loaded Backdraft Damper (recommended):

Install the Backdraft Damper with the leaf hinge vertical. The damper is installed on the "Stale Air to Outside" Collar.



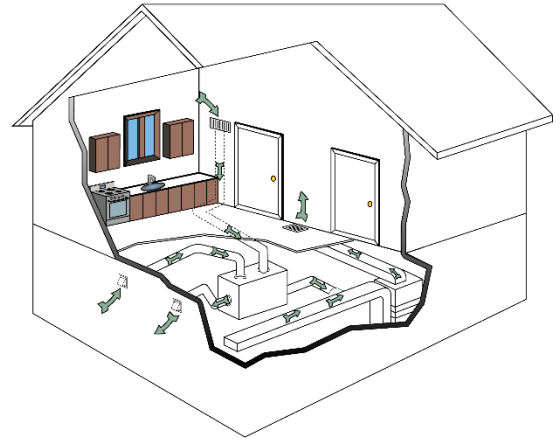
### Warning

- Check local codes/authority having jurisdiction for acceptance.
- Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.
- Weatherhood arrangement is for drawing purposes only. Check local codes/authority having jurisdiction for acceptance.
- Backdraft dampers are recommended for the stale air to outside air duct. This damper prevents outdoor air from entering the HRV during the operation of the furnace/air handler while the HRV is in standby, off, or recirculating.

### 3 PARTIALLY DEDICATED SYSTEM INSTALLATION

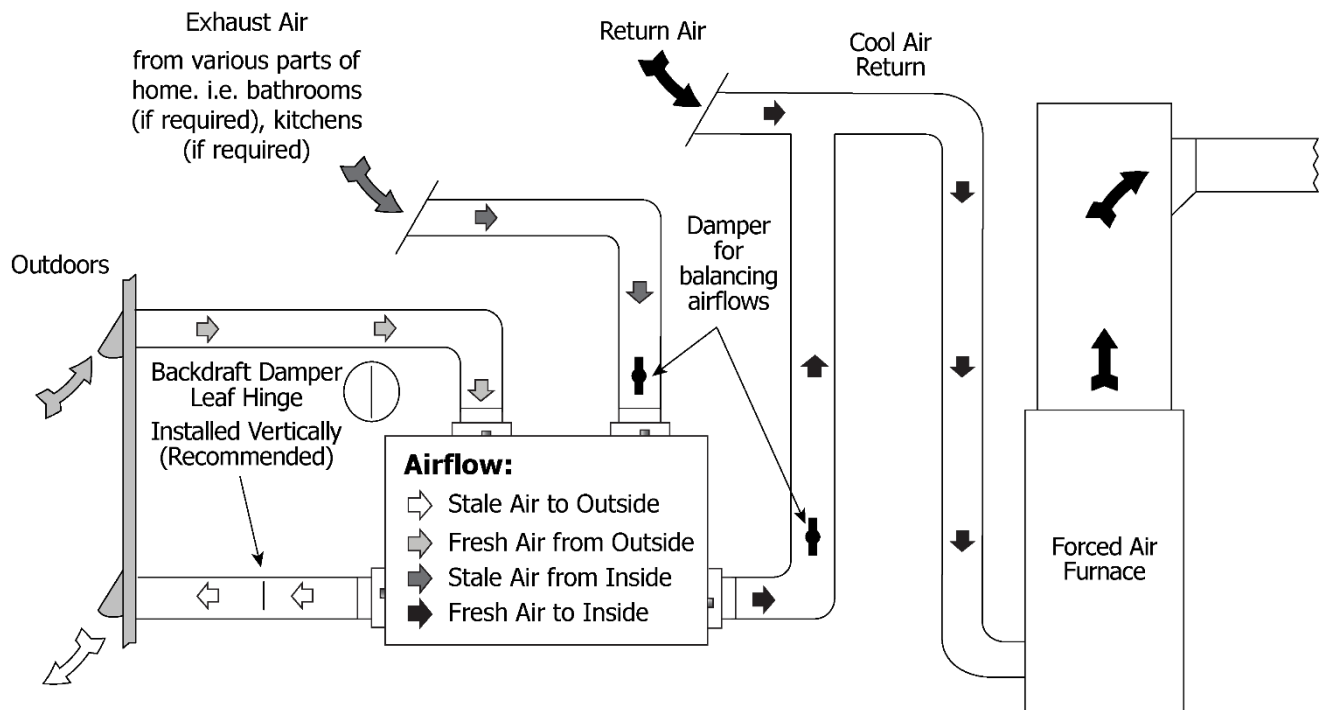
#### Installation Notes:

- The HRV must be balanced.
- Unit should be balanced on high speed with the furnace blower on.
- It is recommended that the furnace blower run continuously or HRV operation be interlocked with the furnace blower. Refer to building code.
- The duct configuration may change depending on the HRV model.
- A backdraft damper is recommended in the exhaust air duct to prevent outdoor air from entering the unit.
- The airflow must be confirmed on site using the balancing procedures found in this guide.



#### Spring-Loaded Backdraft Damper (recommended):

Install the Backdraft Damper with the leaf hinge vertical. The damper is installed on the "Stale Air to Outside" Collar.



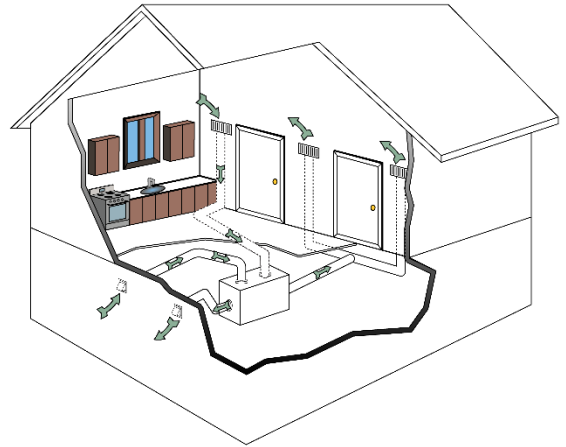
#### Warning

- Check local codes/authority having jurisdiction for acceptance.
- Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.
- Weatherhood arrangement is for drawing purposes only. Check local codes/authority having jurisdiction for acceptance.
- Backdraft dampers are recommended for the stale air to outside air duct. This damper prevents outdoor air from entering the HRV during the operation of the furnace/air handler while the HRV is in standby, off, or recirculating.

## 4 FULLY DEDICATED SYSTEM INSTALLATION

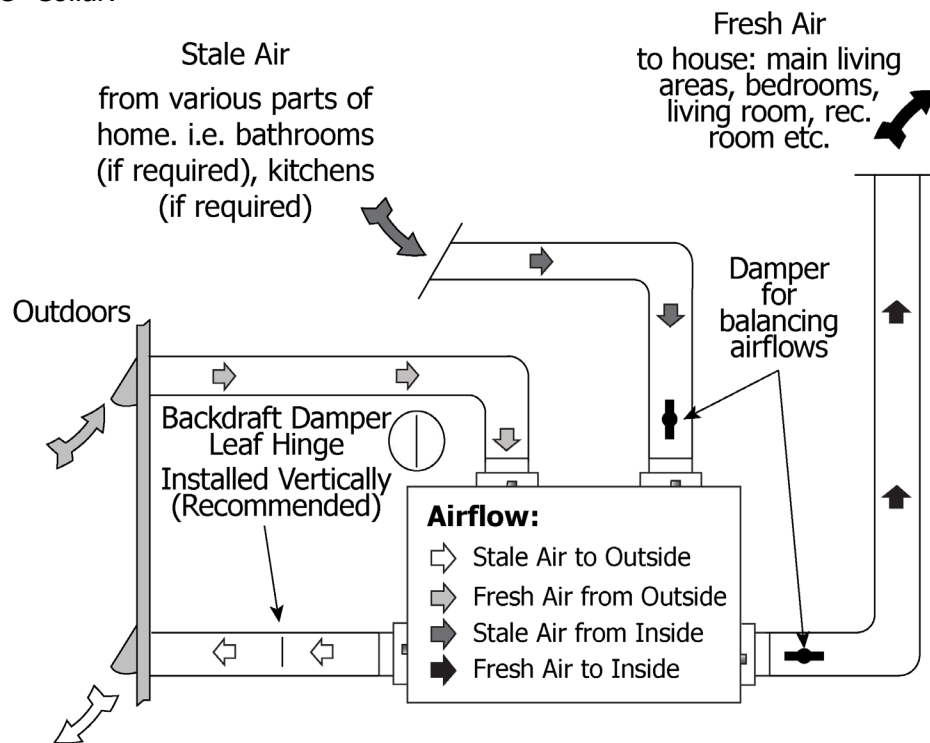
### Installation Notes:

- The HRV must be balanced.
- When balancing, all external exhaust systems should be turned off (i.e., range hood, exhaust, bathroom vents).
- All exhausting appliances should have their own make-up air, as this is not as intended use for the HRV system.
- The duct configuration may change depending on the HRV model.
- The airflow must be confirmed on site using the balancing procedures found in this guide.



### Spring-Loaded Backdraft Damper (recommended):

There is a location for an optional Backdraft Damper with the leaf hinge vertical. The damper is installed on the "Stale Air to Outside" Collar.



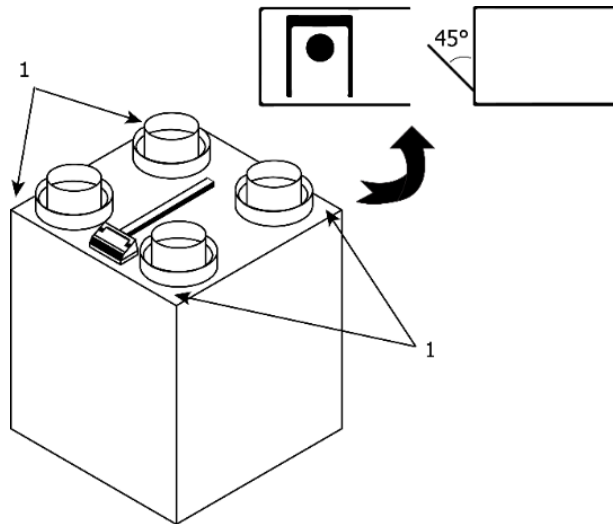
## Warning

- Check local codes/authority having jurisdiction for acceptance.
- Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.
- Weatherhood arrangement is for drawing purposes only. Check local codes/authority having jurisdiction for acceptance.
- Backdraft dampers are recommended for the stale air to outside air duct. This damper prevents outdoor air from entering the HRV during the operation of the furnace/air handler while the HRV is in standby, off, or recirculating.

## 5 MOUNTING (AIR 85-F)

### Mounting the RNC4-TPD & RNC4-TPF:

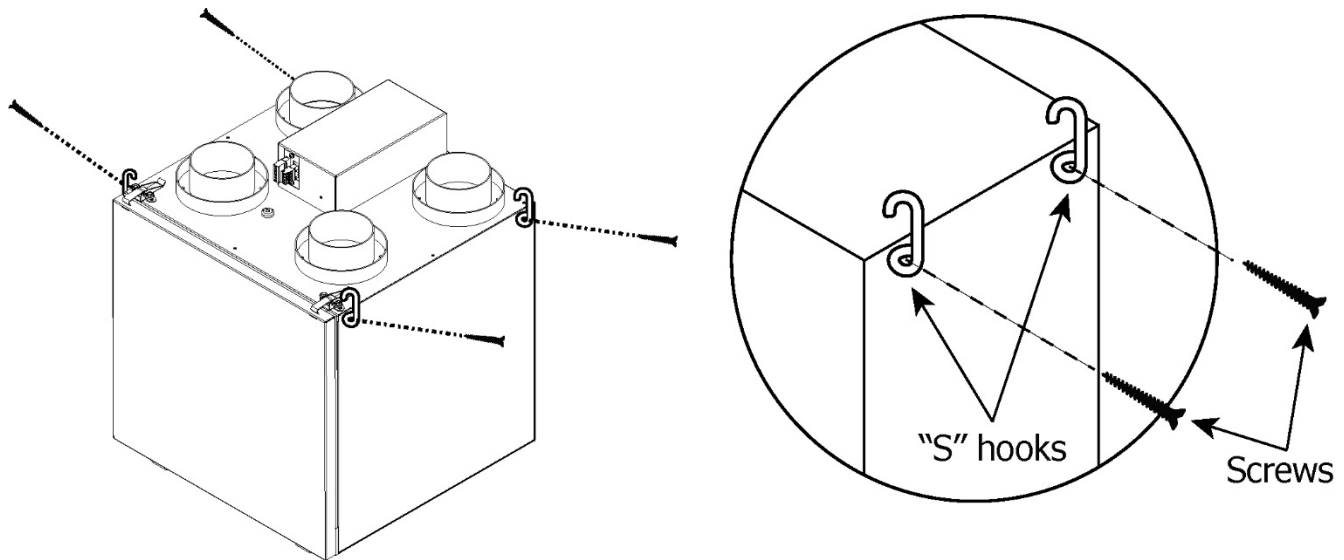
#### (1) Mounting Points



1. Locate the four mounting tabs on the left and right sides of the unit, at the front and back.
2. Using a flat head screwdriver, bend out the four tabs to approximately 45 degrees.
3. Once the tabs have all been bent outwards, insert the "S" hooks through the four holes on the tabs.
4. Install the unit to the structure. Refer to [Hanging Straps](#).

### Mounting the AIR 85-F:

#### (1) Mounting Points



1. Mounting locations on AIR 85-F uses standard mounting hardware, same as other RNC HRVs.
2. Install the unit to the structure. Refer to [Hanging Straps](#).



## Attention

- Do not drill additional holes in the HRV

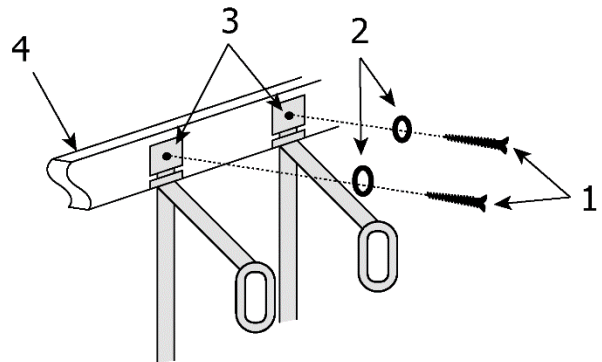


## 6 HANGING STRAPS

The hanging straps are designed to reduce the possibility of noise, resonance, and harmonics.

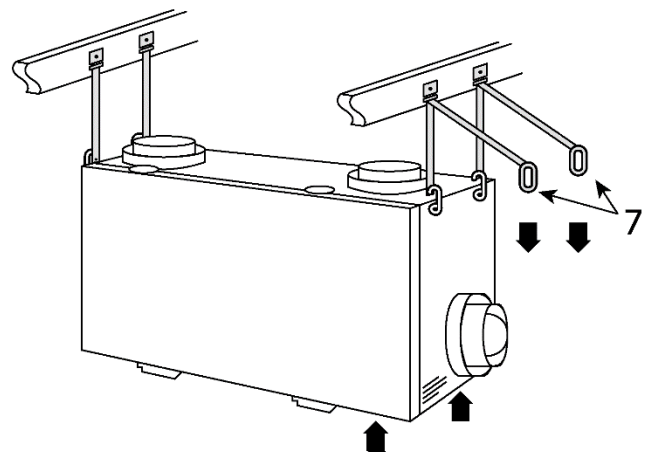
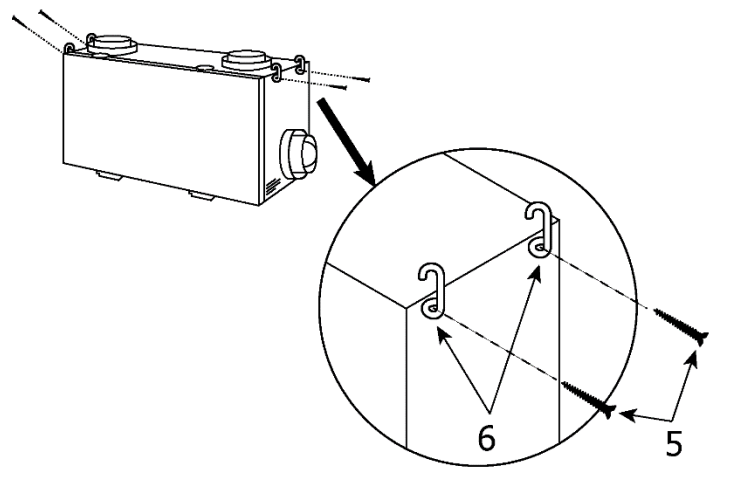
### Figure Callouts:

- (1) Screws (not included)
- (2) Washers (not included)
- (3) Hanging Strap Grommets
- (4) Structure
- (5) Machine Screws
- (6) "S" Hooks
- (7) Hand Loops



### Installation Steps:

1. Insert 4 screws and 4 washers (not included) through the hanging strap grommets. Fasten to the structure.
2. Remove the 4 machine screws located on the upper side of the unit. Attach the "S" hooks and reinsert the machine screws.
3. Hook the bottom grommets of the straps through the "S" hooks. Pull down vertically on the hand loops while lifting the bottom of the unit.
4. Level the unit from right to left to right and front to back. Adjust the unit up by pulling down vertically on the hand loops while lifting on the bottom of the cabinet.
5. Fold the excess strap of the hand loops and secure with a zip tie.



### Attention

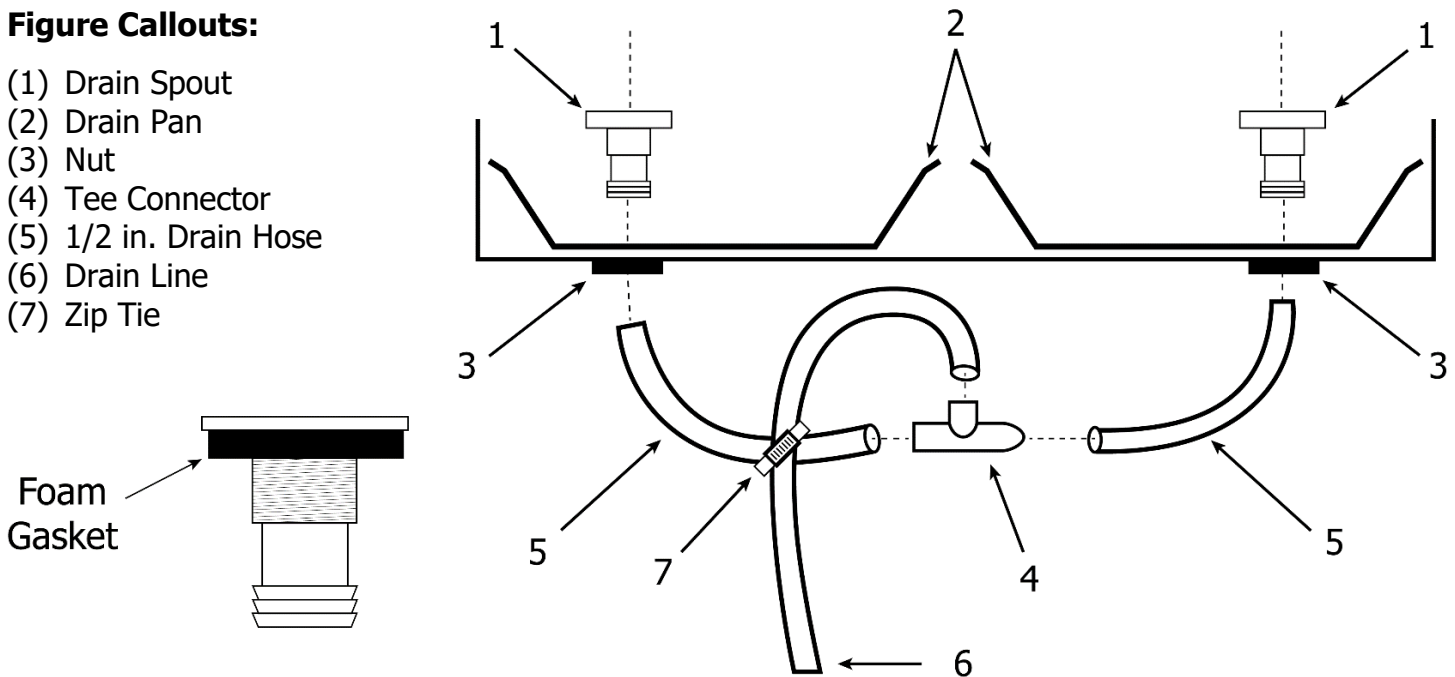
- The washer must be wider than the eyelet of the grommet on the hanging strap.
- Must push up on the bottom of the HRV when pulling the hanging straps.
- The unit must be mounted level for proper drainage of the condensate pans.

## 7 DRAIN CONNECTION

The HRV cabinet has pre-punched holes for the drain. The HRV may produce some condensation during a defrost cycle. This water should flow into a nearby drain or be taken away by a condensate pump.

### Figure Callouts:

- (1) Drain Spout
- (2) Drain Pan
- (3) Nut
- (4) Tee Connector
- (5) 1/2 in. Drain Hose
- (6) Drain Line
- (7) Zip Tie



### Installation Steps:

1. Insert the drain spout through the hole in the drain pan. For the RCN4-TPD/TPF units, use the drain spout with the foam gasket only.
2. Install nut and washer on the drain spout. Tighten the nut. For the RCN4-TPD/TPF units, hand-tighten the nut only.
3. Construct a P-trap using the plastic tee connector.
4. Cut two lengths of 1/2 in. drain hose (not included) and connect the ends to the two drain spouts and the other ends to the plastic tee connector.
5. Position the tee connector to point upward and connect the drain line. Use a zip tie to secure the drain line to one of the 1/2 in. drain hoses.
6. Tape or fasten base to avoid any kinks.
7. Pour a cup of water into the drain pan of the HRV after the drain connection is complete. This creates a water seal which will prevent odours from being drawn up the hose and into the fresh air supply of the HRV.



### Caution

- The HRV and all condensate lines must be installed in a space where the temperature is maintained above the freezing point or freeze protection must be provided.
- Drain trap and tubing must be below bottom of door with 1/4 in. per foot downwards slope away from unit.
- Under certain conditions, a secondary drain pan may be required to protect from condensate leakage.

## 8 GRILLES

### Installation Notes:

Adjustable grilles should be used to balance the flow rates into and out of various rooms. The grilles should not be adjusted after balancing the unit.

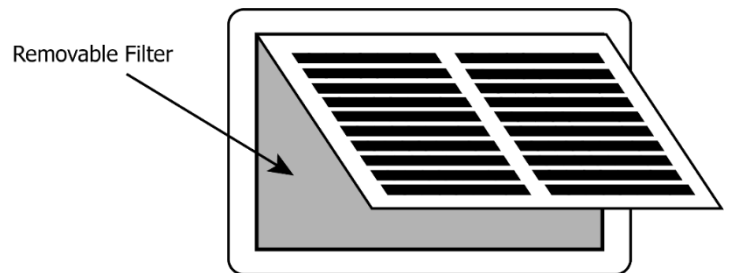
Grilles or diffusers should be positioned high on the wall or in the ceiling. Kitchen exhaust should never be connected to the range hood. They should be installed at least 4 ft (1.2 m) horizontally away from the stove.

Field supplied balancing dampers should be installed external to the unit to balance the amount of stale air being exhausted with the amount of fresh air being brought into the house. Refer to airflow balancing section.

### The Kitchen Grille

The Kitchen Grille includes a removable grease filter. Most building codes require that kitchen grilles are equipped with washable filters.

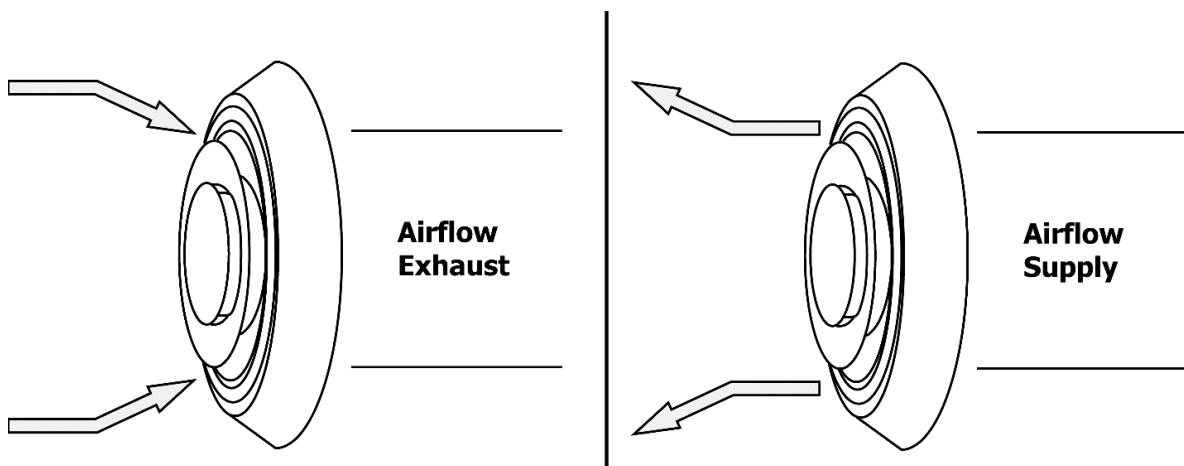
- Part# 99-10-002, 6 in x 10 in



### The TechGrille

The TechGrille is a round, fully adjustable grille, which provides quiet air distribution.

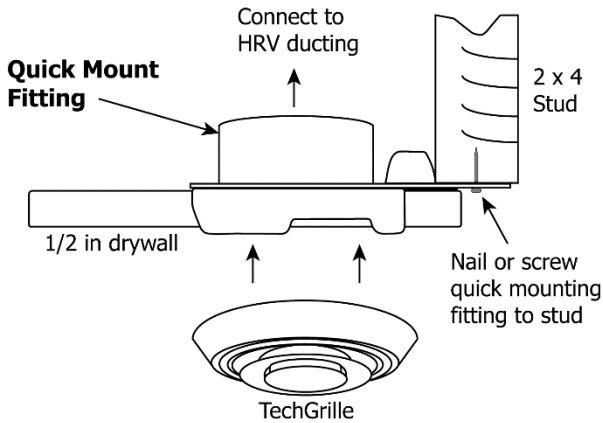
- Part # 99-EAG4, 4 in (100 mm)
- Part # 99-EAG5, 5 in (125 mm)
- Part # 99-EAG6, 6 in (150 mm)
- Part # 99-EAG8, 8 in (200 mm)



## 9 GRILLE FITTINGS

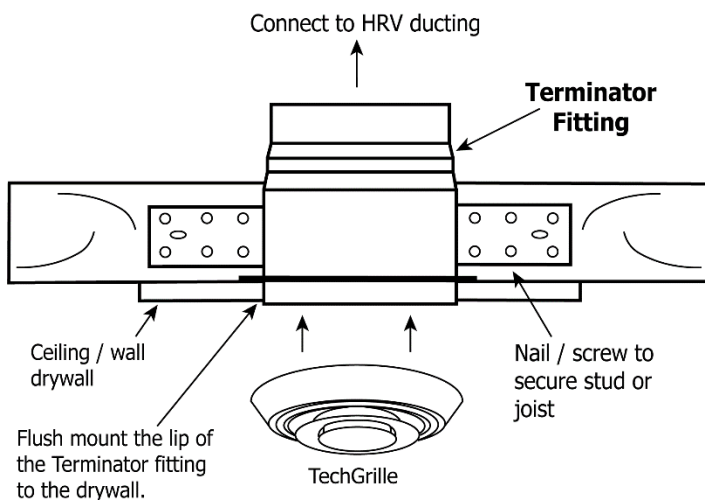
### Quick Mount Fitting (Part# 99-QM6)

- Use this rough-in fitting before the drywall is installed.
- Nail fitting onto the stud.
- Available size: 6 in.



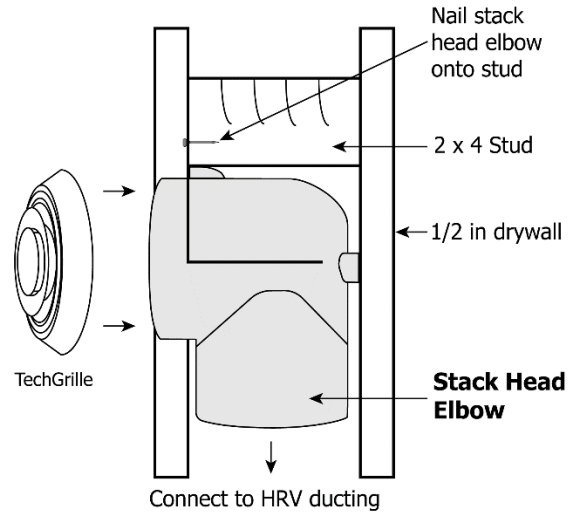
### Terminator Fitting (Part# 99-TM 4/5/6)

- Use this rough-in fitting before the drywall is installed.
- Nail or screw fitting onto the stud or joist.
- Available sizes: 4 in, 5 in, and 6 in.
- Adapts to ridged and flex ducting
- Strong attachment for grilles, either vertically or horizontally.



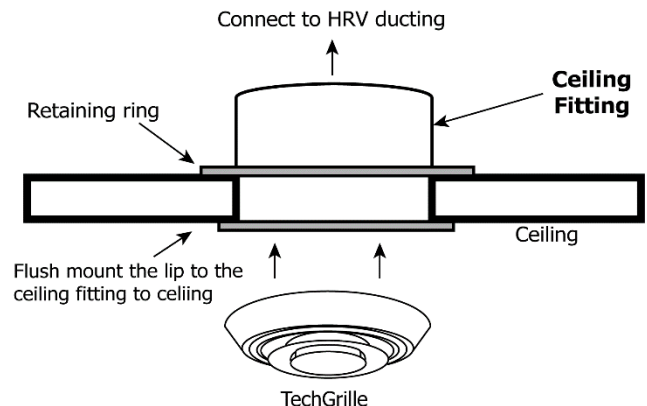
### Stack Head Elbow (Part# 99-WF 4/6)

- Use this rough-in fitting before the drywall is installed.
- This fitting is ideal for running ducting through 2 x 4 (min.) studded walls.
- Nail to stud.
- Available sizes are 4 in. and 6 in.



### Suspended Ceiling Fitting (Part# 99-CF6)

- Use this fitting for ceiling tiles or finished/installed drywall.
- Cut a hole through the ceiling tile, insert the fitting and use the retaining ring to hold the fitting in place.
- For finished/installed drywall, use caulking around the lip if you do not have access to attach the retaining ring.
- Available size: 6 in.



## Caution

- Do not mount exhaust grille within 4 ft (1.2 m) (horizontally) of a stove to prevent grease from entering the unit.

## 10 AIRFLOW WEATHER HOODS

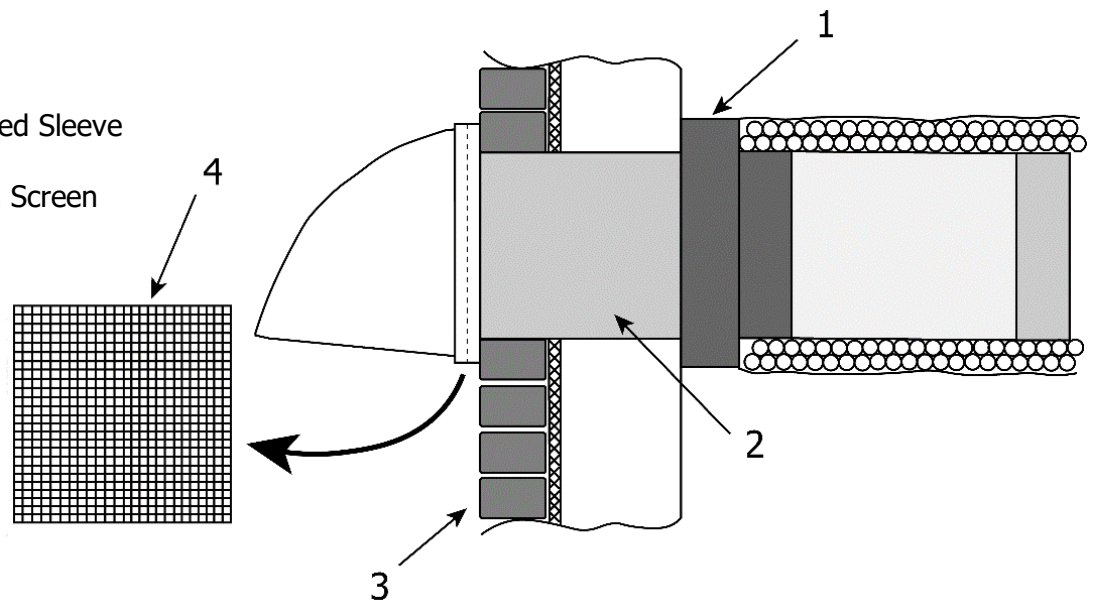
Fixed covered weather hoods have a built-in bird screen with a 1/4 in. (6 mm) mesh to prevent foreign objects from entering the ductwork.

### Installation Notes:

- The inner and outer liners of the flexible insulated duct must be clamped to the sleeve of the weatherhoods (as close to the outside as possible) and the appropriate port on the HRV. It is very important that the fresh air intake line be given special attention to make sure it is well sealed. A good bead of high-quality caulking (preferably acoustical sealant) will seal the inner flexible duct to both the HRV port and the weatherhood prior to clamping.
- The flexible insulated duct that connects the two outside weatherhoods to the HRV should be stretched tightly and be as short as possible to minimize air flow restrictions.
- Twisting or folding the duct will severely restrict airflow.
- Hard (rigid) ducting which has been sealed and insulated should be used for runs over 10 ft (3.3 m). Refer to your local building code.

### Figure Callouts:

- (1) Thermal Collar
- (2) 12 in. long Galvanized Sleeve
- (3) Exterior Wall
- (4) 1/4 in. (6mm) Mesh Screen



### Installation Steps:

1. Thermal collar slides over galvanized sleeve to ensure vapor barrier is 100% sealed to wall plate.
2. Fasten thermal collar to belt.
3. Slide the insulated flexible ducting over galvanized sleeve and fasten it to the thermal collar.
4. Weatherhood is hinged to allow for easy access for cleaning of mesh screen.



## Attention

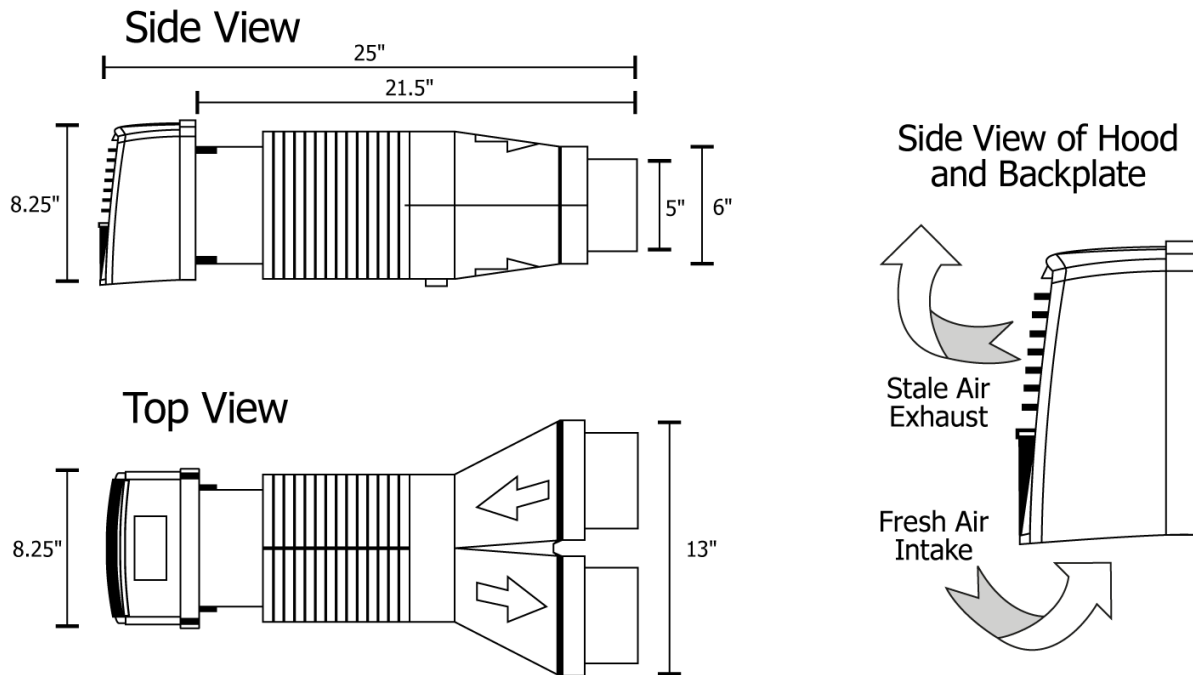
- **Weather Hood Requirements:** Check local codes/authority having jurisdiction for acceptance and space requirements for weatherhoods. Do not locate in garage, attic, or crawl space.
  - i) **Intake:** Should be located upstream (if there are prevailing winds) from the exhaust outlet. Not near dryer vents, furnace exhaust, driveways, oil fill pipes, gas meters, or garbage containers.
  - ii) **Exhaust:** Not near a gas meter, electric meter or a walkway where fog or ice could create a hazard.

## 11 AIRFLOW DUAL HOOD

The Airflow Dual Hood only requires one 6 in. opening for intake and exhaust. The Airflow Dual Hood can be used up to a maximum airflow of 140 cfm.

### Available Units:

- 99-194 – 4 in. Dual Hood (not shown)
- 99-190 – 5-6 in. Dual Hood



### Caution

- Sealant must be applied as per instructions or leakage and condensation may occur.
- Insulate the Fresh Air Supply and Stale Air Exhaust duct work back to the unit.



### Attention

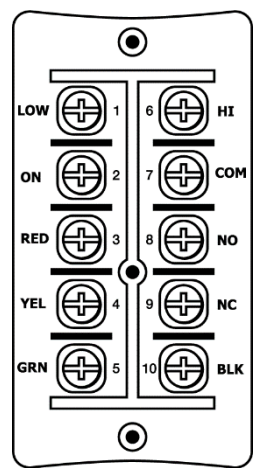
- Contact your local building authority before installation of the Dual Hood to verify compliance with local building codes.



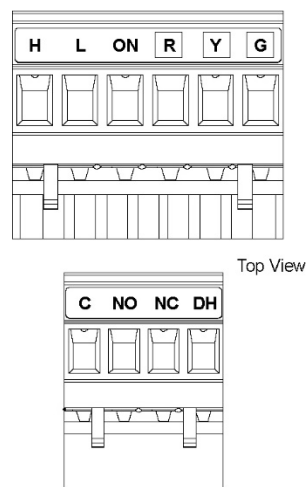
### Note

- Tested by: National Research Council Canada
- Program: Building Regulations for Market Access Report Number: A1-007793
- Report Date: 15 February 2016
- Found to comply with requirement as set in the NBC.

# 13    TERMINAL BLOCKS



TB01 Terminal Block



TB04 Terminal Block

## 14 MAIN CONTROL INSTALLATION (99-GDXPL03)

The 99-GDXPL03 main control must be surface mounted onto a wall. Only one main control should be installed into a ventilation system.

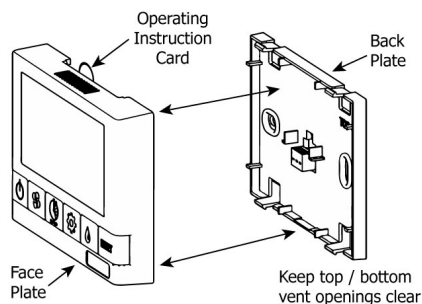


Figure A

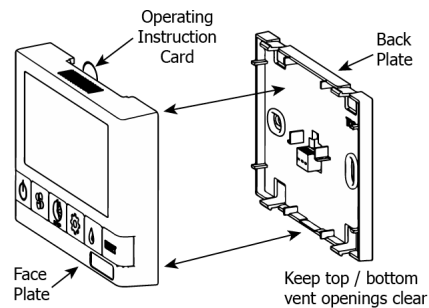


Figure A

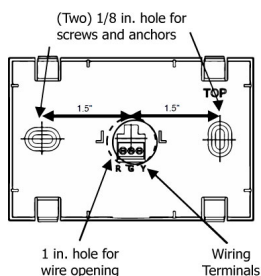


Figure B

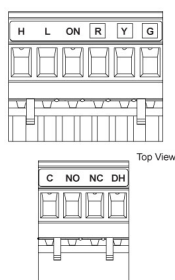


Figure C

DXPL03 with TB04 Terminal Block

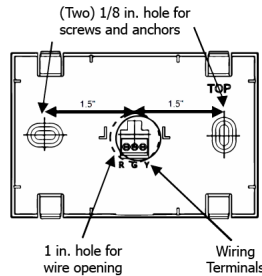


Figure B

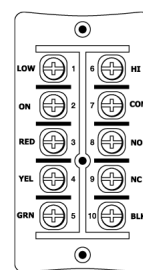


Figure C

DXPL03 with TB01 Terminal Block

### Installation:

1. Remove the operating instructions card from the top of the main control (figure A).
2. Carefully separate the face plate and the back plate by firmly pulling it apart (figure A).
3. Position the back plate of the control in the desired location on the wall and mark the wall for the desired screw holes (figure B).
4. Remove the back plate from the wall and mark the hole for the wires in between the two screw holes (figure B).
5. Drill two holes for the screws and wall anchors and drill one hole for the wires in between the two screw holes (figure B).
6. Pull the 3 wire 20 gauge (min.), 100 ft length (max.), through the opening in the wall.
7. Connect the wires to the R, G, and Y terminals on the back plate (figure B).
8. Using the two supplied screws and anchors, install the back plate on the wall.
9. Attach the face plate to the back plate (figure A).
10. Install the operating instructions card in the top of the main control (figure A).
11. Connect the 3 wires 20 gauge (min.), 100 ft length (max.), to the 3 (RED), 4 (YEL), and 5 (GRN) terminals located on the HRV terminal block (figure C).



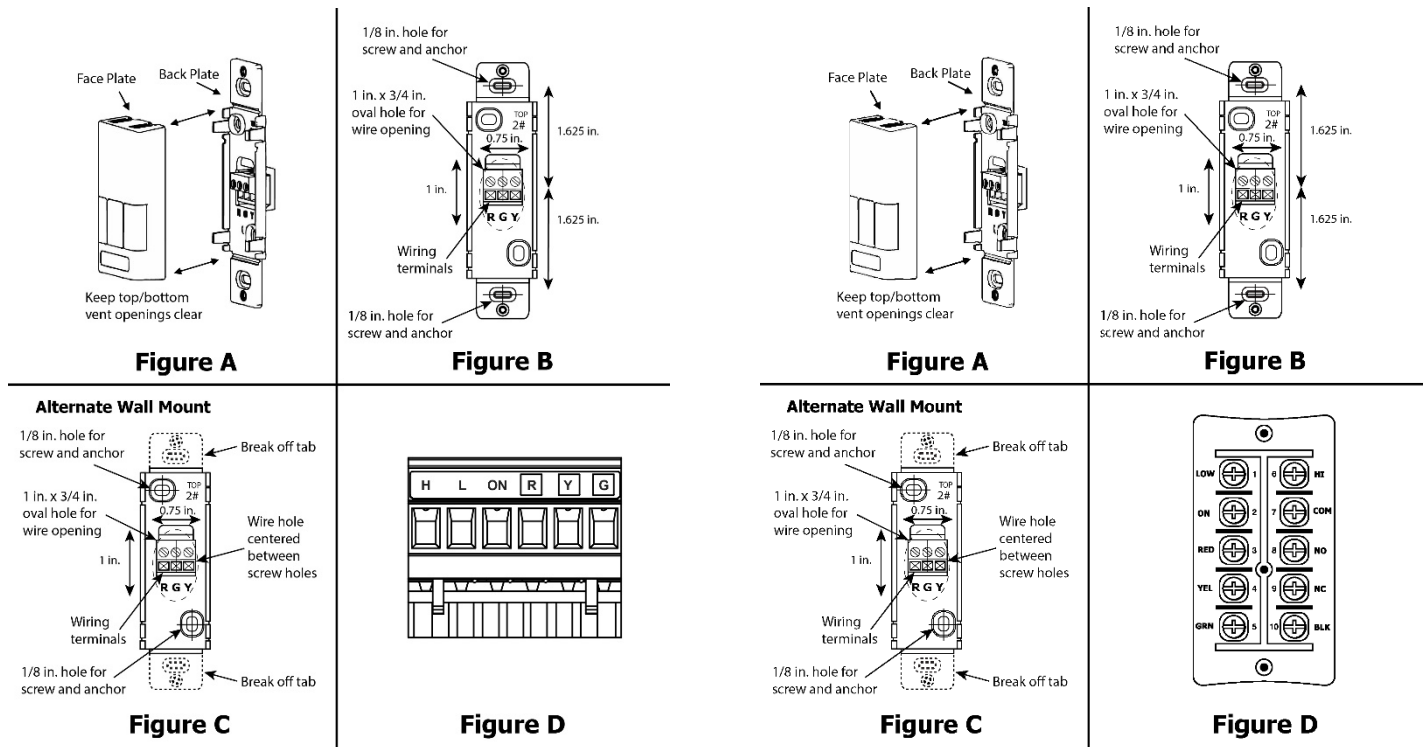
### Attention

- Use care when separating or attaching the face plate to avoid damaging the contact pins.



## 15 MAIN CONTROL INSTALLATION (99-GBC02/3/4)

The 99-GBC02, 99-GBC03, 99-GBC04 ventilation controls may either be installed onto a flush mounted electrical switch box or surface mounted onto a wall. Only one main control should be installed into a ventilation system.



GBC02/03/04 with TB04 Terminal Block

GBC02/03/04 with TB01 Terminal Block

### Installation:

1. Carefully separate the face plate and the back plate by firmly pulling it apart. Keep the top/bottom vent openings clear (figure A).
2. Position the back plate in the desired location on the wall and mark the wall for the desired screw holes (figure B).
3. For mounting the main control without a Decora plate, break off the top and bottom tabs then position the back plate in the desired location on the wall and mark the wall for the desired screw holes (figure C)
4. Remove the back plate from the wall and mark the hole for the wires centered between the two screw holes (figure B or C).
5. Drill two 1/8 in. holes for the screws and wall anchors and drill one 1 in. x 0.75 in. hole for the wires.
6. Pull the 3 wire 20 gauge (min.), 100 ft length (max.), through the opening in the wall.
7. Connect the wires to the R, G, and Y terminals on the back plate (figure B or C).
8. Using the two supplied screws and anchors, install the back plate on the wall.
9. Attach the face plate to the back plate (figure A).
10. Connect the 3 wires 20 gauge (min.), 100 ft length (max.), to the 3 (RED), 4 (YEL), and 5 (GRN) terminals located on the HRV terminal block (figure D).

### Attention

- Use care when separating or attaching the face plate to avoid damaging the contact pins.

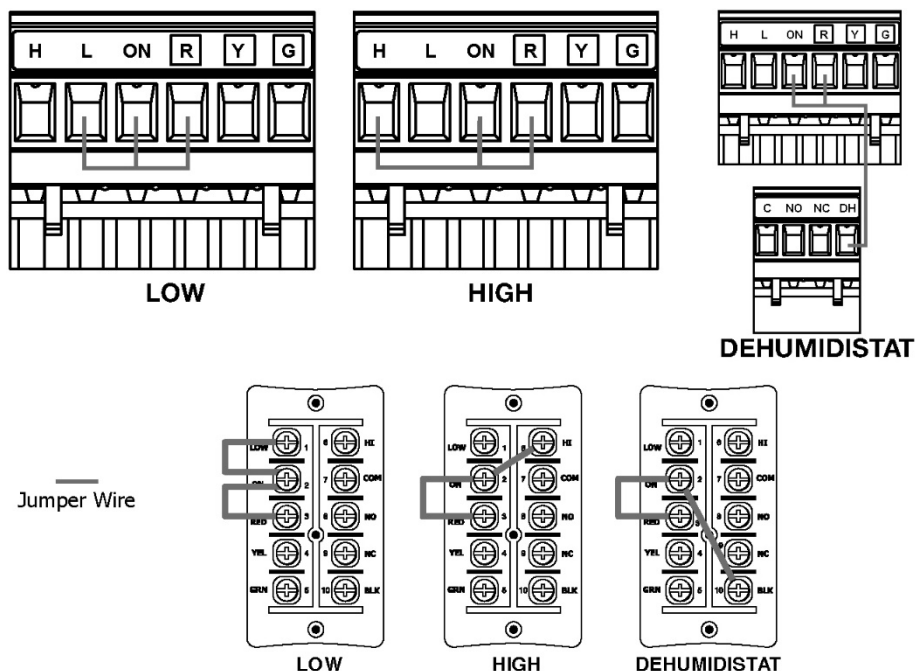


## 17 ADDITIONAL CONTROLS

### Setting "Standby" When Using the Main Control

The HRV will be "fully-off" when selected on the main control. Timers and/or other controls will not function when the HRV is in off position.

The "fully-off" feature can be modified to "standby-off" by adding a jumper on the HRV terminal block between 2 (ON) and 3 (RED) terminals. "Standby" can also be achieved by setting the main control to the on position and selecting speed 0. Timers and/or additional controls will initiate high speed ventilation when activated.



### Adding Dry Contact Controls

A jumper must be placed between 2 (ON) and 3 (RED) terminals on the HRV terminal block to activate the HRV for timers and/or dry contact controls, or if installing the unit without a main control. Jumpers can be added between terminals on the HRV terminal block for additional controls, per the table below:

Setting	Terminals	
Low Speed Ventilation	2 (ON)	1 (LOW)
High Speed Ventilation	2 (ON)	6 (HI)
Dehumidistat	2 (ON)	10 (BLK)



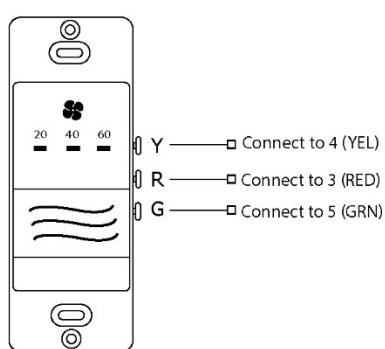
### Caution

- Building codes in some areas require "fully-off" functionality. Check with your local building authority before modifying the unit to "standby-off". Unintentional operation of the HRV by the end user may occur if the unit is modified from "fully-off" to "standby-off".

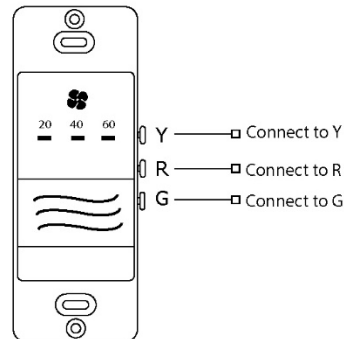
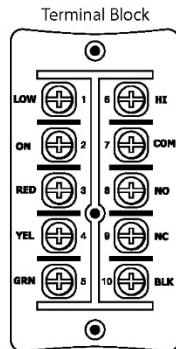
## 18 TIMERS

### 20/40/60 Minute Timer (99-DET01)

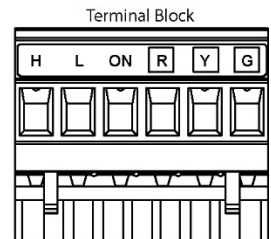
Connect the wires from the Y, R, and G terminals on the timer to the 4 (YEL), 3 (RED), and 5 (GRN) terminals on the HRV terminal block as shown. A jumper between Red and On is required when not using a de-humidistat.



DET01 Timer with TB01 terminal block

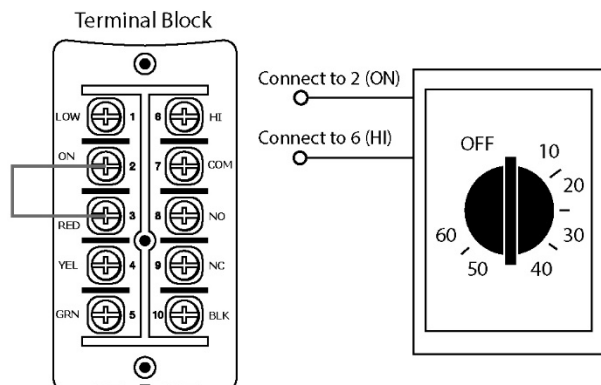


DET01 Timer with TB04 terminal block

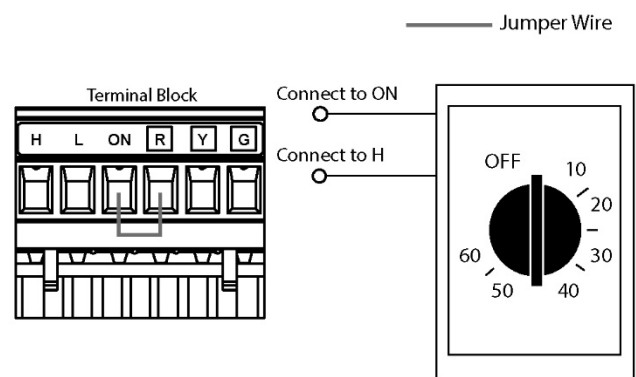


### Mechanical Timers Installation (99-101)

The Mechanical Timer is a 2 wire “dry contact” timer. Connect a jumper wire between the 2 (ON) and 3 (RED) terminals on the HRV terminal block and connect the two timer wires to the 2 (ON) and 6 (HI) terminals on the HRV terminal block as shown.



Dry Contacts Connections  
with TB01 terminal block



Dry Contacts Connections  
with TB04 terminal block



### Attention









- Timers mount in standard electrical boxes.
- Use 3 wire 20 gauge (min.) 100 ft length (max.) low voltage wire and multiple timers individually wired back to the unit.

## 18 TIMERS

### Wireless 20/40/60 Minute Timer (99-DET02)

The timers may be installed onto a flush mounted electrical switch box or it may be surfaced mounted onto a wall.

#### Pairing:

1. Remove the battery from the back of the timer, if installed.
2. Press the ON/OFF Button  on the main control to turn it on.
3. **GDXPL03:** Press the left and right buttons ( and ) simultaneously on the main control. The screen will go blank, and the wireless symbol  will appear flashing on the bottom right of the display. This indicates that the main control is now in pairing mode.
4. **GBC02, GBC03, or GBC04:** Press the left and right butt : (  d  or ) simultaneously on the main control. The bottom row LEDs will begin flashing. This indicates the main control is now in pairing mode.
5. Keep the timer within 16 in. of the main control when pairing.
6. Install the battery into the remote timer. The four lights will immediately flash five times. The red battery light will remain on for 12 seconds, then the 40 minute status light will flash. The 20, 40, and 60 minute status lights will flash for up to 30 seconds and then stop.
7. Press the Power Button  on the main control to exit pairing mode.
8. Press the Select Button on the timer to test that pairing was successful (figure A).
  - If the HRV initiates HIGH fan speed ventilation, pairing was successful.
  - If the HRV does not initiate HIGH fan speed ventilation, pairing was not successful. Un-pair the timer and return to step 1 of the pairing procedure and restart the pairing process.
9. Pair additional timers as necessary by repeating steps 1 through 8.

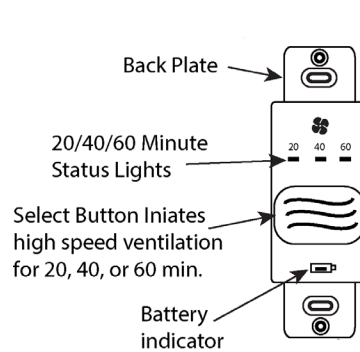


Figure A

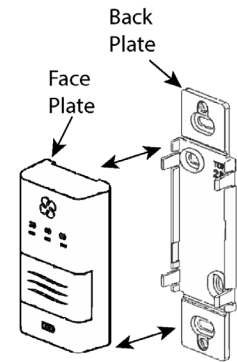


Figure B

#### Alternate Wall Mount

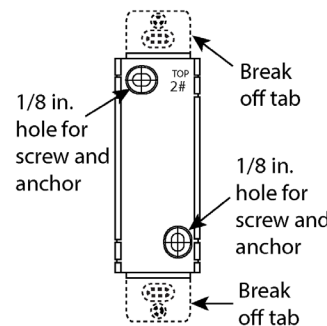


Figure C

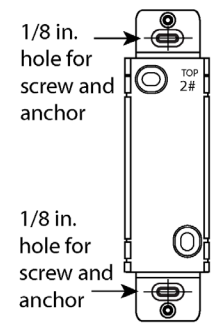


Figure D

#### Un-pairing:

1. Remove the battery from the back of the timer.
2. Press and hold the Select Button on the front of the timer (figure A).
3. While holding the Select Button, reinstall the battery in the timer. Continue holding the Select Button until the 20, 40, and 60 minute status light begins flashing (this can take up to 30 seconds). The timer will now be unpaired with the main control (figure A).

#### Installation:

1. Separate the face plate from the back plate by firmly pulling apart (figure B).
2. For mounting the main control without a Decora plate, break off top and bottom tabs (figure C).
3. Place the back plate of the main control in the desired location on the wall and pencil mark the top and bottom screw holes. Drill two 1/8" holes (figure C or D).
4. Attach the back plate to the wall using the two supplied screws and anchors.
5. Attach the face plate to the back plate (figure B).



#### Attention

- The wireless timers and repeaters must be paired to the main control of the HRV. This process is called "Pairing". Multiple timers and repeaters can be paired to the main control.

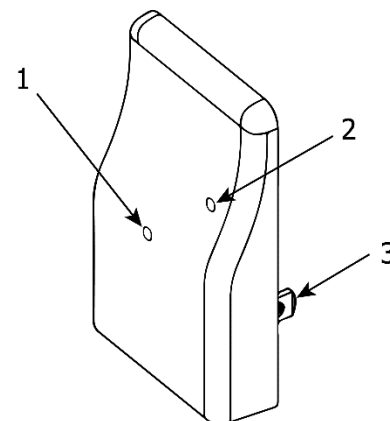
## 19 REPEATER

### 99-RX02 Repeater

- (1) Green LED
- (2) Red LED
- (3) Power Plug







The wireless repeater is used to extend the range of the 99-DET02 wireless timers. The repeater plugs directly into a 120V power outlet. The 99-RX02 repeater wirelessly connects to the main control as well as the 99-DET02 wireless timers.

The 99-RX02 repeater should be installed at the halfway point between the 99-DET02 wireless timer and the main control if the timer is out of range. The LED will indicate the repeater's connection strength to the main control per the table below. Re-adjust the repeater's position as necessary.



LED Colour	Connection	Action
Solid Green	Good	No further adjustments are required.
Flashing Green	Moderate	The repeater will function properly but shouldn't be moved further away from the main control.
Red	Bad	The repeater needs to be moved closer to the main control.

#### Pairing:

1. Turn on the main control by pressing the ON/OFF button .
2. **GDXPL03 control:** Press the left and right buttons simultaneously on the main control ( and RESET). The screen will go blank, and the wireless symbol will appear flashing on the bottom right of the display. This indicates that the main control is now in pairing mode.
3. **GBC02, GBC03 or GBC04 control:** Press the left and right buttons simultaneously on the main control ( and  or ). The bottom row LED's will begin flashing. This indicates that the main control is now in pairing mode.
4. The RX02 Repeater must be powered within 16 in. of the main control for pairing. If an outlet is not available an extension cord should be used to power the Repeater initially for pairing.
5. Plug the repeater into the power outlet. The green light will flash after approximately 12 seconds indicating that the repeater is paired with the main control.
6. Press the ON/OFF button  on the main control to exit pairing mode and the repeater may now be unplugged and moved to its permanent location.
7. To pair additional repeaters with the same main control, repeat steps 1 through 5 until all repeaters have been paired.



### Attention

- The repeaters are to be plugged directly into a 120V power outlet.

# 20 INSTALLER SELECTABLE HIGH SPEED SETTINGS

## Adjusting the DIP Switches

The circuit board on this unit has adjustable DIP switches for the selection of three different high speeds. The factory setting is Hi3. Refer to [www.libreath.com](http://www.libreath.com) for the specifications sheet particular to the unit.

## DIP Switch settings

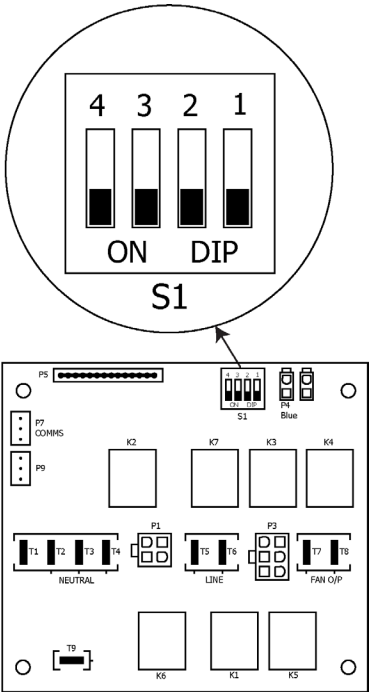
Speed	Switch			
	1	2	3	4
Hi 3 (High Speed)	ON	Leave on factory setting	ON	ON
Hi 2 (Med Speed)	ON	Leave on factory setting	OFF	ON
Hi 1 (Low Speed)	ON	Leave on factory setting	ON	OFF

**Note:** Low Speed is not adjustable; Switch 1 factory setting is ON

## Functionality of DIP Switches

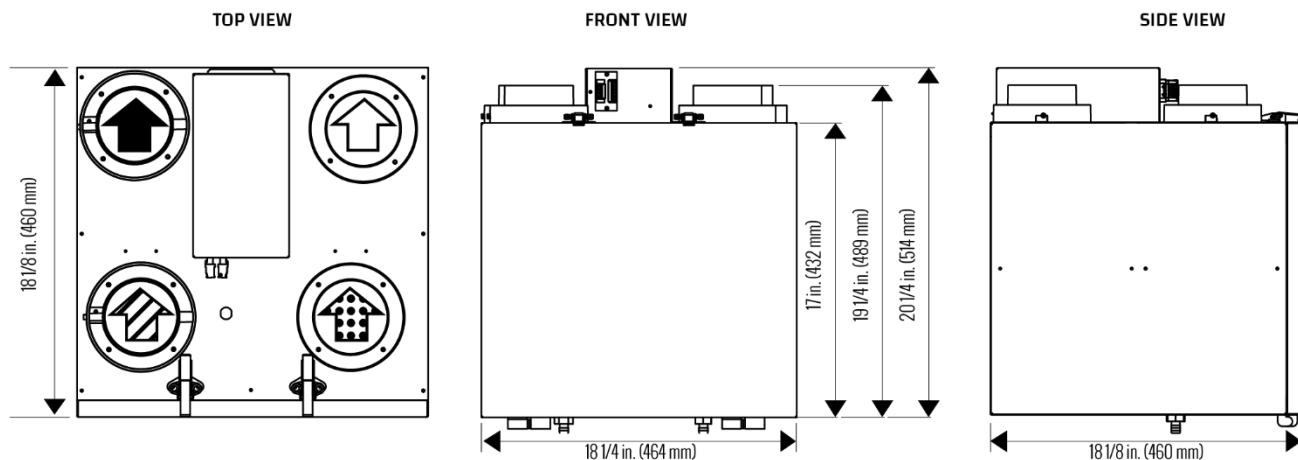
Switch	Status	Description
2	ON	Recirculation enabled
	OFF	Recirculation disabled

**Note:** Recirculation is not available on all units.

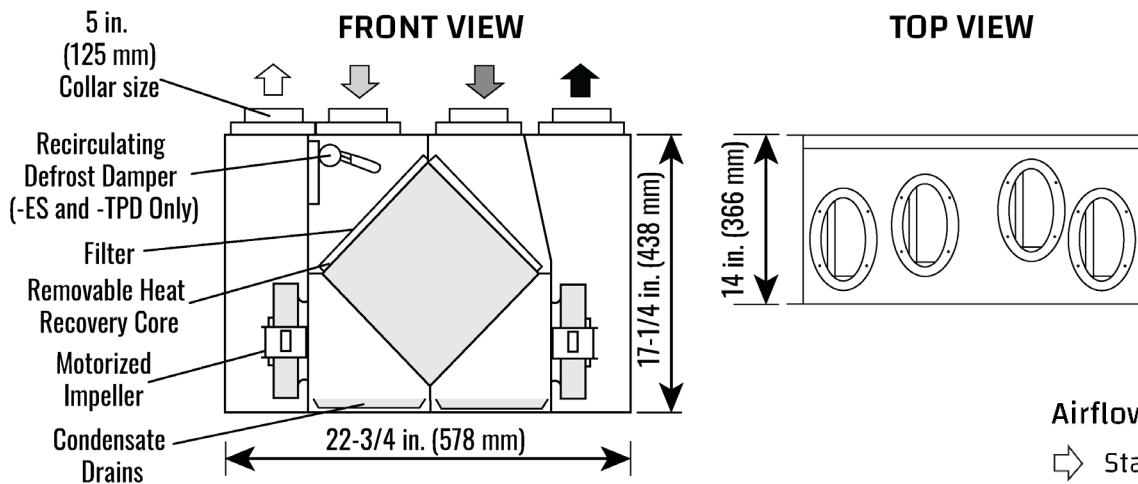


## 21 DIMENSIONAL DRAWINGS

### AIR 85-F Dimensions:



### AIR 135-ES Dimensions:



#### **Airflow:**

- ➡ Stale Air to Outside
- ➡ Fresh Air from Outside
- ➡ Stale Air from Inside
- ➡ Fresh Air to Inside

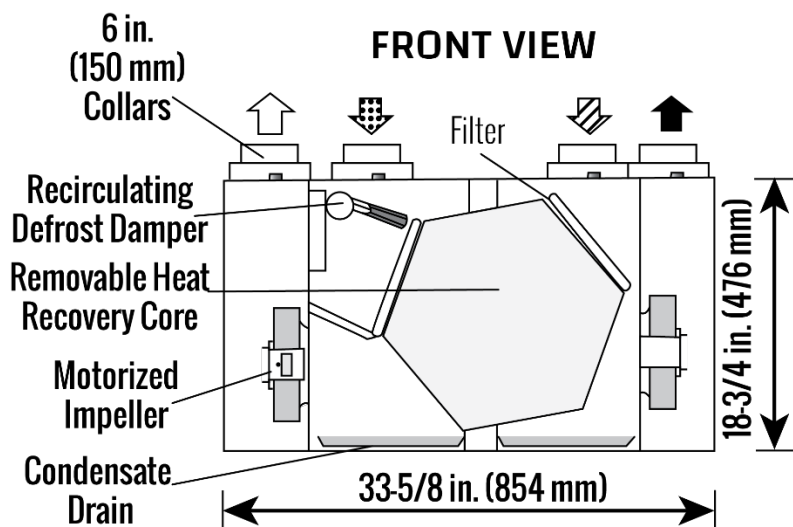


## 21 DIMENSIONAL DRAWINGS

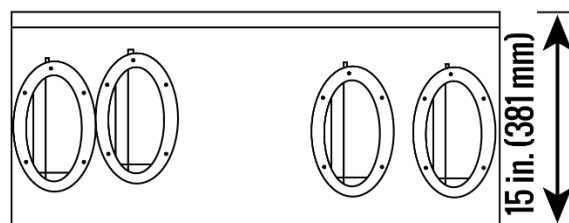
### Airflow:

- ⇨ Stale Air to Outside
- ⇦ Fresh Air from Outside
- ⇩ Stale Air from Inside
- ⇨ Fresh Air to Inside

### AIR 205-R and AIR 265-R Dimensions:



### **TOP VIEW**



## 22 BALANCING THE AIRFLOWS

Balancing the airflows is critical to ensure that the amount of air coming into the building equals the amount of air exhausted to the outside of the building. If these two airflows are not properly balanced, the following issues may occur:

- A positive or negative pressure in the house
- HRV will not operate at its maximum efficiency
- HRV will not defrost properly.

### Airflow Measuring Gauge:

- A digital manometer is a suitable instrument for the balancing of airflows.

### Airflow Balancing Kit:

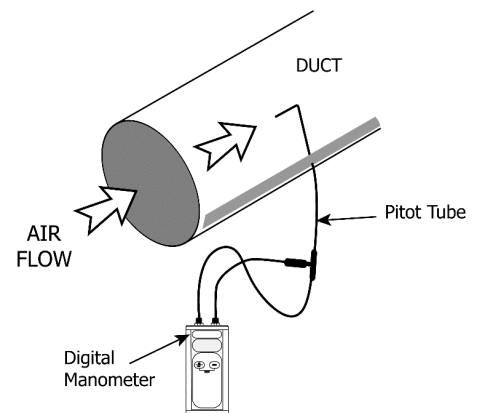
- Kit includes a digital manometer, pitot tubes, hose, adapters, and tool bag.



*Airflow Balancing Kit (99-BAL-KIT)*

### Gauge Attachments:

When sampling an airflow, various attachments are available for use on a digital manometer. Consult with your Airflow distributor for available options such as a pitot tube, flow measuring station, and an airflow measuring probe. The illustration below shows a digital manometer with a pitot tube attachment. This combination will measure the system air velocity pressure accurately, regardless of the duct size or shape (either round or rectangular).



### Balancing Preparation:

Prior to performing the air balancing procedure, perform the following steps:

1. Seal the ductwork.
2. Confirm the installation and proper operation of all the components of the HRV.
3. Fully open the balancing dampers.
4. Turn off all household exhaust devices (range hood, clothes dryer, bathroom fans).
5. Set the HRV at high speed.
6. Prior to balancing the unit, first adjust airflows in the branch lines to specific areas of the house.
7. If the outdoor temperature is below 0°C (32°F), ensure the unit is not running in defrost.
8. If the system is a Simplified or Partially Dedicated installation, operate the furnace/air handler at high speed.



## Attention

- Continuous, excessive, positive pressure may drive moist indoor air into the external walls of the building. Once inside the external walls, moist air may condense (in cold weather) and degrade structural components or cause locks to freeze.
- Continuous, excessive, negative pressure may have several undesirable effects. In some geographic locations, soil gases such as methane and radon gas may be drawn into the home through basement or ground contact areas and may also cause the backdrafting of vented combustion equipment.

## 23 BALANCING THE AIRFLOWS

### Determining the CFM:

After balancing the airflows, calculate the CFM flow rate.

### Example

This example shows how to determine the airflow for a 6 in diameter duct. If the duct velocity pressure reads 0.025 in w.g. on the digital manometer, use the chart that came with the pitot tube to determine a duct velocity of 640 ft/min. for a duct velocity pressure of 0.025 in w.g.

### CFM Calculation

CFM = feet per minute x cross section area of duct

$$= 640 \times 0.196$$

$$= 125$$

*Cross section area of some common duct sizes:*

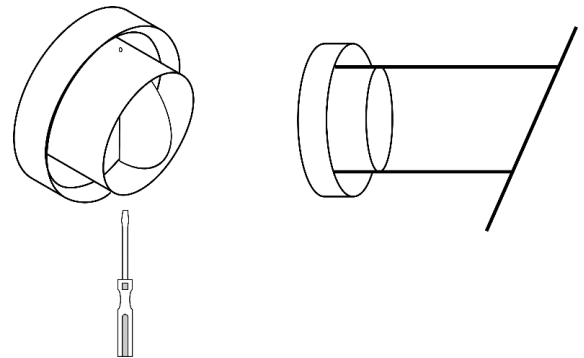
Cross-Section Area	Duct Size
0.087	4 in duct
0.139	5 in duct
0.196	6 in duct
0.267	7 in duct

### Units with Balancing Collars:

Install these units with the dampers fully open and damper down the duct with the higher airflow equal to the lower airflow. All other units require dampers for balancing airflows installed into the "Fresh Air to Building" and "Stale Air from Building" ductwork.

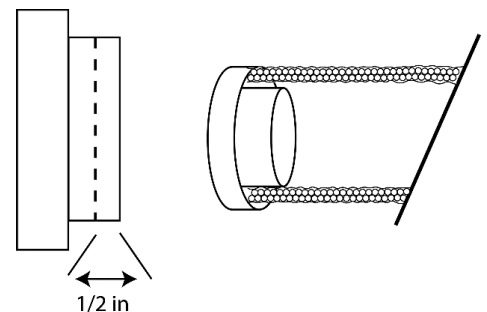
### Hard/Rigid Ducting

- Push and turn with slotted screwdriver. Damper automatically locks when pressure released.



### Insulated flexible ducting

- When connecting ductwork to the collar, take note where screws are located. Screws should be located no further than 1/2 in from outside edge of collar, so as not to impede operation of the damper.



## Attention

- Installations where the HRV is ducted directly to the return of a furnace may require additional dampening on the fresh air to building duct. This is due to the high return static pressures found in some furnace installations.

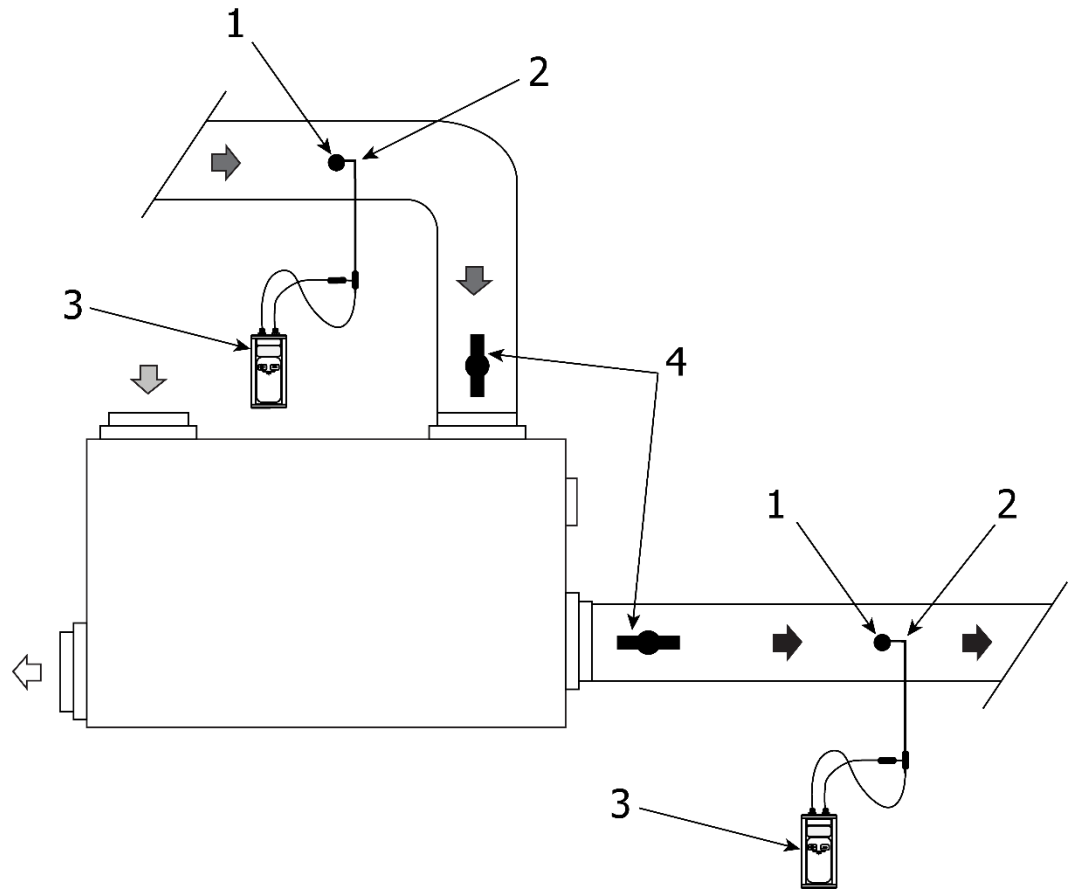
## 24 BALANCING THE AIRFLOWS – PITOT TUBE

### Figure Callouts:

- (1) 3/16 in. Hole
- (2) Pitot Tube Tip
- (3) Digital Manometer
- (4) Balancing Damper

### Airflow:

- ⇨ Stale Air to Outside
- ⇩ Fresh Air from Outside
- ⇨ Stale Air from Inside
- ➡ Fresh Air to Inside



### Steps:

1. Drill a 3/16 in. hole in the duct, ideally 3 ft. downstream and 1 ft. upstream of any elbows or bends in the fresh air and stale air streams.
2. Insert the pitot tube with the tip facing towards the air stream in the "Stale Air from Inside" stream. Move the pitot tube around in the duct (facing toward the airflow) and take an average reading. Record the reading.
3. Repeat Step 2 to measure the "Fresh Air to Inside" stream.
4. Review the readings and damper down the duct with the highest duct velocity pressure. Repeat Steps 2 and 3 until both ducts show identical readings. Upon completion of balancing, seal the holes with foil tape.

## 25 BALANCING THE AIRFLOWS – DOOR PORTS

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Door balancing ports are designed to be used in the conjunction with a digital manometer to measure the stale and fresh airflows for balancing. Refer to [Door Port Locations](#) for your model to locate the door ports.





1. Prepare the airflow measuring device by connecting the hoses to the low- and high-pressure side of the gauge.
2. Insert the hoses into suitable rubber fittings (comes with 99-BAL-KIT). Use light pressure and rotate until fitting is snug. Do not extend the hose past the rubber fitting.
3. Open the HRV door. Remove the four door port covers by carefully pushing them out from the back side of the door.
4. Close the HRV door. Initiate power and operate the HRV on high speed. Operate the forced air system on high speed (if the HRV is connected to the forced air system).
5. Insert the 2 hoses from the gauge into the exhaust balance ports. Seal the supply balance ports with tape. Record your reading. If you get a negative reading, the hoses need to be reversed.
6. Insert the 2 hoses from the gauge to the supply balance ports. Seal the exhaust balance ports with tape. Record your reading. If you get a negative reading, the hoses need to be reversed.
7. Refer to [Airflow Charts](#) for your model to determine the supply airflow and exhaust airflow rates.
8. Damper down the higher airflow and repeat Steps 5 through 7 as required until both airflows are identical (balanced).
9. Remove the tape and hoses and reinstall the four door port covers.

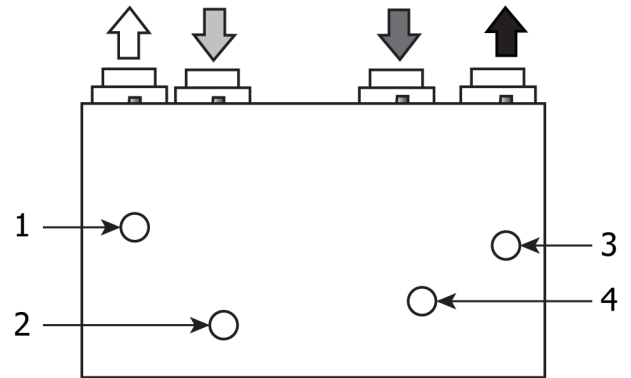
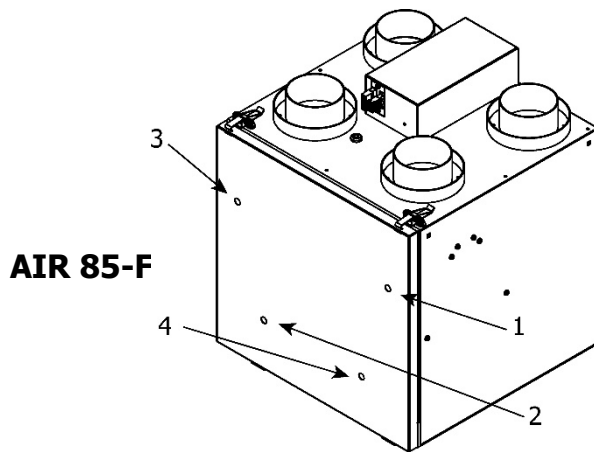
## 26 DOOR PORT LOCATIONS

### Door Ports

- (1) Exhaust Balance Port High (+)
- (2) Exhaust Balance Port Low (-)
- (3) Supply Balance Port High (+)
- (4) Supply Balance Port Low (-)

### Airflow:

-  Stale Air to Outside
-  Fresh Air from Outside
-  Stale Air from Inside
-  Fresh Air to Inside



**AIR 135-ES**  
**AIR 205-R, AIR 265-R**

## 27 AIRFLOW CHARTS (AIR 85-F)

The RNC4-TPD units have three airflow charts for their installer adjustable high speed settings. Refer to [Installer Selectable High Speed Settings](#) in this manual for instructions on how to adjust the circuit board DIP switches.

Hi 3				Hi 2				Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow
("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)
0.010	2	21	25	0.010	2	18	21	0.010	2	18	21
0.015	4	25	29	0.015	4	22	25	0.015	4	22	24
0.020	5	28	32	0.020	5	25	28	0.020	5	25	28
0.025	6	32	35	0.025	6	29	32	0.025	6	29	31
0.030	7	36	38	0.030	7	33	35	0.030	7	33	35
0.035	9	39	41	0.035	9	37	39	0.035	9	37	38
0.040	10	43	45	0.040	10	40	42	0.040	10	41	42
0.045	11	46	48	0.045	11	44	45	0.045	11	45	45
0.050	12	50	51	0.050	12	48	49	0.050	12	48	49
0.055	14	53	54	0.055	14	52	52	0.055	14	52	52
0.060	15	57	58	0.060	15	56	56	0.060	15	56	56
0.065	16	60	61	0.065	16	59	59	0.065	16	60	59
0.070	17	64	64	0.070	17	63	63	0.070	17	64	63
0.075	19	68	67	0.075	19	67	66	0.075	19	68	66
0.080	20	71	71	0.080	20	71	70	0.080	20	71	70
0.085	21	75	74	0.085	21	75	73	0.085	21	75	73
0.090	22	78	77	0.090	22	78	76	0.090	22	79	77
0.095	24	82	80	0.095	24	82	80	0.095	24	83	80
0.100	25	85	84	0.100	25	86	83	0.100	25	87	84
0.105	26	89	87	0.105	26	90	87	0.105	26	91	87
0.110	27	92	90	0.110	27	94	90	0.110	27	95	91
0.115	29	96	93	0.115	29	97	94	0.115	29	98	94
0.120	30	100	97	0.120	30	101	97	0.120	30	102	98
0.125	31	103	100	0.125	31	105	100	0.125	31	106	101
0.130	32	107	103	0.130	32	109	104	0.130	32	110	105
0.135	34	110	106	0.135	34	113	107	0.135	34		108
0.140	35	114	110	0.140	35		111				
0.145	36	117	113								
0.150	37	121	116								
0.155	39		119								

## 28 AIRFLOW CHARTS (AIR 135-ES)

The AIR 135-ES units have three airflow charts for their installer adjustable high speed settings. Refer to [Installer Selectable High Speed Settings](#) in this manual for instructions on how to adjust the circuit board DIP switches.

Hi 3				Hi 2				Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow
("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)
0.70	174	-	158	0.57	142	-	140	0.50	125	-	124
0.71	177	-	155	0.58	145	-	137	0.51	127	-	120
0.72	179	-	152	0.59	147	-	134	0.52	130	-	117
0.73	182	-	149	0.60	150	-	131	0.53	132	-	114
0.74	184	-	146	0.61	152	-	127	0.54	135	-	110
0.75	187	-	143	0.62	154	-	124	0.55	137	-	107
0.76	189	-	140	0.63	157	-	121	0.56	140	-	104
0.77	192	-	137	0.64	159	-	118	0.57	142	-	101
0.78	194	-	134	0.65	162	-	115	0.58	145	-	98
0.79	197	-	131	0.66	164	-	112	0.59	147	-	94
0.80	199	-	128	0.67	167	-	109	0.60	150	126	91
0.81	202	-	125	0.68	169	-	106	0.61	152	121	88
0.82	204	-	122	0.69	172	-	103	0.62	154	116	85
0.83	207	-	119	0.70	174	141	100	0.63	157	111	83
0.84	209	-	116	0.71	177	136	97	0.64	159	107	80
0.85	212	-	113	0.72	179	131	94	0.65	162	102	77
0.86	214	-	110	0.73	182	126	92	0.66	164	98	74
0.87	217	155	107	0.74	184	121	89	0.67	167	93	71
0.88	219	149	104	0.75	187	116	86	0.68	169	89	69
0.89	222	144	101	0.76	189	111	83	0.69	172	85	66
0.90	224	139	98	0.77	192	107	80	0.70	174	81	63
0.91	227	134	95	0.78	194	103	77	0.71	177	78	61

Continued next page ►



## 29 AIRFLOW CHARTS (AIR 135-ES)

The AIR 135-ES units have three airflow charts for their installer adjustable high speed settings. Refer to [Installer Selectable High Speed Settings](#) in this manual for instructions on how to adjust the circuit board DIP switches.

Hi 3				Hi 2				Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow
("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)
0.92	229	129	92	0.79	197	98	75	0.72	179	74	58
0.93	232	125	89	0.80	199	94	72	0.73	182	70	56
0.94	234	120	87	0.81	202	90	69	0.74	184	67	53
0.95	237	115	84	0.82	204	86	66	0.75	187	64	51
0.96	239	111	81	0.83	207	83	64	0.76	189	61	48
0.97	242	106	78	0.84	209	79	61	0.77	192	58	46
0.98	244	102	75	0.85	212	75	58	0.78	194	55	44
0.99	247	98	72	0.86	214	72	56	0.79	197	52	42
1.00	249	94	69	0.87	217	68	53	0.80	199	50	-
1.01	252	90	66	0.88	219	65	51	0.81	202	47	-
1.02	254	86	63	0.89	222	62	48	0.82	204	45	-
1.03	257	82	60	0.90	224	59	45	0.83	207	43	-
1.04	259	78	57	0.91	227	56	43	0.84	209	41	-
1.05	262	75	54	0.92	229	53	40	-	-	-	-
1.06	264	71	51	0.93	232	51	-	-	-	-	-
1.07	267	68	48	0.94	234	48	-	-	-	-	-
1.08	269	64	45	0.95	237	46	-	-	-	-	-
1.09	272	61	42	0.96	239	43	-	-	-	-	-
1.10	274	58	-	0.97	242	41	-	-	-	-	-
1.11	277	55	-	-	-	-	-	-	-	-	-
1.12	279	52	-	-	-	-	-	-	-	-	-
1.13	282	49	-	-	-	-	-	-	-	-	-
1.14	284	46	-	-	-	-	-	-	-	-	-
1.15	287	44	-	-	-	-	-	-	-	-	-
1.16	289	41	-	-	-	-	-	-	-	-	-
1.17	292	39	-	-	-	-	-	-	-	-	-

## 30 AIRFLOW CHARTS (AIR 205-R)

The AIR 205-R units have three airflow charts for their installer adjustable high speed settings. Refer to [Installer Selectable High Speed Settings](#) in this manual for instructions on how to adjust the circuit board DIP switches.

Hi 3				Hi 2				Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow
("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)
0.65	162	210	-	0.47	117	177	-	0.40	100	153	-
0.66	164	208	-	0.48	120	175	-	0.41	102	150	-
0.67	167	206	-	0.49	122	172	-	0.42	105	147	-
0.68	169	204	-	0.50	125	169	-	0.43	107	144	-
0.69	172	201	204	0.51	127	167	-	0.44	110	141	-
0.70	174	199	202	0.52	130	164	177	0.45	112	138	152
0.71	177	197	200	0.53	132	161	174	0.46	115	136	148
0.72	179	194	197	0.54	135	159	171	0.47	117	133	145
0.73	182	192	195	0.55	137	156	168	0.48	120	130	141
0.74	184	190	193	0.56	140	154	165	0.49	122	128	138
0.75	187	188	191	0.57	142	151	162	0.50	125	125	135
0.76	189	185	188	0.58	145	149	159	0.51	127	123	131
0.77	192	183	186	0.59	147	146	156	0.52	130	120	128
0.78	194	181	184	0.60	150	144	153	0.53	132	117	125
0.79	197	179	182	0.61	152	141	150	0.54	135	115	122
0.80	199	176	179	0.62	154	139	147	0.55	137	112	119
0.81	202	174	177	0.63	157	137	144	0.56	140	110	116
0.82	204	172	175	0.64	159	134	141	0.57	142	108	113
0.83	207	170	173	0.65	162	132	138	0.58	145	105	110
0.84	209	167	171	0.66	164	129	136	0.59	147	103	107
0.85	212	165	168	0.67	167	127	133	0.60	150	100	105
0.86	214	163	166	0.68	169	125	130	0.61	152	98	102
0.87	217	160	164	0.69	172	122	128	0.62	154	96	99
0.88	219	158	162	0.70	174	120	125	0.63	157	94	97
0.89	222	156	159	0.71	177	118	122	0.64	159	91	94
0.90	224	154	157	0.72	179	116	120	0.65	162	89	92
0.91	227	151	155	0.73	182	113	117	0.66	164	87	89
0.92	229	149	153	0.74	184	111	115	0.67	167	85	87
0.93	232	147	150	0.75	187	109	112	0.68	169	83	85
0.94	234	145	148	0.76	189	107	110	0.69	172	81	82
0.95	237	142	146	0.77	192	105	108	0.70	174	79	80
0.96	239	140	144	0.78	194	102	105	0.71	177	77	78
0.97	242	138	142	0.79	197	100	103	0.72	179	75	76
0.98	244	136	139	0.80	199	98	101	0.73	182	73	74
0.99	247	133	137	0.81	202	96	98	0.74	184	71	72
1.00	249	131	135	0.82	204	94	96	0.75	187	69	70
1.01	252	129	133	0.83	207	92	94	0.76	189	67	68
1.02	254	126	130	0.84	209	90	92	0.77	192	65	67

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## 31 AIRFLOW CHARTS (AIR 205-R)

The AIR 205-R units have three airflow charts for their installer adjustable high speed settings. Refer to [Installer Selectable High Speed Settings](#) in this manual for instructions on how to adjust the circuit board DIP switches.

Hi 3				Hi 2				Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow
("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)
1.03	257	124	128	0.85	212	88	90	0.78	194	63	65
1.04	259	122	126	0.86	214	86	88	0.79	197	61	63
1.05	262	120	124	0.87	217	84	86	0.80	199	60	62
1.06	264	117	121	0.88	219	82	83	0.81	202	58	60
1.07	267	115	119	0.89	222	80	82	0.82	204	56	59
1.08	269	113	117	0.90	224	78	80	0.83	207	54	57
1.09	272	111	115	0.91	227	76	78	0.84	209	53	56
1.10	274	108	113	0.92	229	74	76	0.85	212	51	55
1.11	277	106	110	0.93	232	72	74	0.86	214	49	53
1.12	279	104	108	0.94	234	70	72	0.87	217	48	52
1.13	282	102	106	0.95	237	69	70	0.88	219	46	51
1.14	284	99	104	0.96	239	67	69	0.89	222	45	50
1.15	287	97	101	0.97	242	65	67	0.9	224	43	49
1.16	289	95	99	0.98	244	63	65	0.91	227	42	48
1.17	292	92	97	0.99	247	61	63	0.92	229	40	47
1.18	294	90	95	1.00	249	59	62	0.93	232	-	46
1.19	297	88	92	1.01	252	58	60	0.94	234	-	45
1.20	299	86	90	1.02	254	56	59	0.95	237	-	45
1.21	302	83	88	1.03	257	54	57	0.96	239	-	44
1.22	304	81	86	1.04	259	53	56	0.97	242	-	43
1.23	306	79	84	1.05	262	51	54	0.98	244	-	43
1.24	309	77	81	1.06	264	49	53	0.99	247	-	42
1.25	311	74	79	1.07	267	48	51	1.00	249	-	42
1.26	314	72	77	1.08	269	46	50	1.01	252	-	41
1.27	316	70	75	1.09	272	44	49	1.02	254	-	41
1.28	319	68	72	1.10	274	43	47	1.03	257	-	41
1.29	321	65	70	1.11	277	41	46	1.04	259	-	41
1.30	324	63	68	1.12	279	40	45	1.05	262	-	40
1.31	326	61	66	1.13	282	-	44	-	-	-	-
1.32	329	58	63	1.14	284	-	43	-	-	-	-
1.33	331	56	61	1.15	287	-	41	-	-	-	-
1.34	334	54	59	1.16	289	-	40	-	-	-	-
1.35	336	52	57	-	-	-	-	-	-	-	-
1.36	339	49	54	-	-	-	-	-	-	-	-
1.37	341	47	52	-	-	-	-	-	-	-	-
1.38	344	45	50	-	-	-	-	-	-	-	-
1.39	346	43	48	-	-	-	-	-	-	-	-
1.40	349	40	46	-	-	-	-	-	-	-	-
1.41	351	-	43	-	-	-	-	-	-	-	-
1.42	354	-	41	-	-	-	-	-	-	-	-

## 32 AIRFLOW CHARTS (AIR 265-R)

The AIR 265-R units have three airflow charts for their installer adjustable fan curves. Refer to [Installer Selectable High Speed Settings](#) in this manual for instructions on how to adjust the circuit board DIP switches.

Hi 3				Hi 2				Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow
("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)
1.10	274	-	325	0.86	214	-	250	0.65	162	-	222
1.12	279	-	324	0.87	217	-	249	0.66	164	221	225
1.14	284	-	322	0.88	219	-	248	0.67	167	219	222
1.16	289	-	320	0.89	222	-	247	0.68	169	216	220
1.18	294	-	319	0.90	224	-	245	0.69	172	214	217
1.20	299	-	317	0.91	227	-	244	0.70	174	211	214
1.22	304	-	315	0.92	229	-	242	0.71	177	209	212
1.24	309	-	313	0.93	232	-	241	0.72	179	207	209
1.26	314	-	311	0.94	234	-	240	0.73	182	204	206
1.28	319	-	309	0.95	237	-	238	0.74	184	202	203
1.30	324	-	307	0.96	239	250	236	0.75	187	199	201
1.32	329	-	305	0.97	242	248	235	0.76	189	197	198
1.34	334	323	303	0.98	244	246	233	0.77	192	194	195
1.36	339	320	300	0.99	247	243	232	0.78	194	192	192
1.38	344	317	298	1.00	249	241	230	0.79	197	190	190
1.40	349	313	296	1.01	252	239	228	0.80	199	187	187
1.42	354	310	293	1.02	254	237	227	0.81	202	185	184
1.44	359	307	291	1.03	257	235	225	0.82	204	182	181
1.46	364	304	288	1.04	259	233	223	0.83	207	180	179
1.48	369	300	286	1.05	262	230	221	0.84	209	177	176
1.50	374	297	283	1.06	264	228	219	0.85	212	175	173
1.52	379	293	280	1.07	267	226	217	0.86	214	172	170
1.54	384	290	277	1.08	269	223	215	0.87	217	170	168
1.56	389	287	275	1.09	272	221	214	0.88	219	168	165
1.58	394	283	272	1.10	274	219	212	0.89	222	165	162
1.60	399	279	269	1.11	277	216	210	0.90	224	163	160
1.62	404	276	266	1.12	279	214	207	0.91	227	160	157
1.64	409	272	263	1.13	282	211	205	0.92	229	158	154
1.66	414	268	259	1.14	284	209	203	0.93	232	155	151
1.68	419	265	256	1.15	287	207	201	0.94	234	153	149
1.70	424	261	253	1.16	289	204	199	0.95	237	150	146
1.72	429	257	250								
1.74	434	253	246								

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## 32 AIRFLOW CHARTS (AIR 265-R)

The AIR 265-R units have three airflow charts for their installer adjustable fan curves. Refer to [Installer Selectable High Speed Settings](#) in this manual for instructions on how to adjust the circuit board DIP switches.

Hi 3				Hi 2				Hi 1			
Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow	Pressure Drop		Supply Airflow	Exhaust Airflow
("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)	("w.g.)	(Pa)	(cfm)	(cfm)
1.76	439	249	243	1.19	297	196	192	0.98	244	143	138
1.78	444	245	239	1.20	299	194	190	0.99	247	141	135
1.80	449	241	236	1.21	302	191	188	1.00	249	138	132
1.82	453	237	232	1.22	304	189	185	1.01	252	136	129
1.84	458	233	229	1.23	306	186	183	1.02	254	133	127
1.86	463	229	225	1.24	309	183	180	1.03	257	131	124
1.88	468	225	221	1.25	311	181	178	1.04	259	129	121
1.90	473	220	217	1.26	314	178	175	1.05	262	126	119
1.92	478	216	213	1.27	316	175	173	1.06	264	124	116
1.94	483	212	209	1.28	319	172	170	1.07	267	121	113
1.96	488	207	205	1.29	321	169	168	1.08	269	119	110
1.98	493	203	201	1.30	324	167	165	1.09	272	116	108
2.00	498	199	197	1.31	326	164	162	1.10	274	114	105
2.02	503	194	193	1.32	329	161	160	1.11	277	111	102
2.04	508	190	189	1.33	331	158	157	1.12	279	109	99
2.06	513	185	184	1.34	334	155	154	1.13	282	107	97
2.08	518	180	180	1.35	336	152	151	1.14	284	104	94
2.10	523	176	176	1.36	339	149	149	1.15	287	102	91
2.12	528	171	171	1.37	341	146	146	1.16	289	99	88
2.14	533	166	167	1.38	344	143	143	1.17	292	97	86
2.16	538	162	162	1.39	346	140	140	1.18	294	94	83
2.18	543	157	157	1.40	349	137	137	1.19	297	92	80
2.20	548	152	153	1.41	351	134	134	1.20	299	90	77
2.22	553	147	148	1.42	354	131	131	0.98	244	143	138
2.24	558	142	143	1.43	356	128	128	0.99	247	141	135
2.26	563	137	138	1.44	359	125	125	1.00	249	138	132
2.28	568	132	133	1.45	361	122	122	1.01	252	136	129
2.30	573	127	128	1.46	364	119	119	1.02	254	133	127
2.32	578	122	123	1.47	366	115	116	1.03	257	131	124
2.34	583	117	118	1.48	369	112	112	1.04	259	129	121
2.36	588	112	113	1.49	371	109	109	1.05	262	126	119
2.38	593	106	107	1.50	374	106	106	1.06	264	124	116
2.40	598	101	102	1.51	376	102	103	1.07	267	121	113

### 33 TROUBLESHOOTING

Refer to the following table for troubleshooting the HRV unit.


**Table 17.1 – Troubleshooting Procedures**

SYMPTOM	CAUSE	SOLUTION
Poor airflows	<ul style="list-style-type: none"> <li>• 1/4 in (6mm) mesh on outside hood is plugged</li> <li>• Filters plugged</li> <li>• Core obstructed</li> <li>• House grilles closed or blocked</li> <li>• Dampers are closed if installed</li> <li>• Poor power supply at site</li> <li>• Ductwork is restricting HRV</li> <li>• Improper speed control setting</li> <li>• HRV airflow improperly balanced</li> </ul>	<ul style="list-style-type: none"> <li>• Clean exterior hoods or vents</li> <li>• Remove and clean filter</li> <li>• Remove and clean core</li> <li>• Check and open grilles</li> <li>• Open and adjust dampers</li> <li>• Have electrician check supply voltage</li> <li>• Check duct installation</li> <li>• Increase the speed of the HRV</li> <li>• Have contractor balance HRV</li> </ul>
Supply air feels cold	<ul style="list-style-type: none"> <li>• Poor location of supply grilles, the airflow may irritate the occupant</li> <li>• Outdoor temperature extremely cold</li> </ul>	<ul style="list-style-type: none"> <li>• Locate the grilles high on the walls or under the baseboards, install ceiling mounted diffuse or grilles so as not to directly spill the supply air on the occupant (i.e., over a sofa)</li> <li>• Turn down the HRV supply speed. A small duct heater (1 kW) could be used to temper the supply air</li> <li>• Placement of furniture or closed doors is restricting the movement of air in the home</li> <li>• If supply air is ducted into furnace return, the furnace fan may need to run continuously to distribute ventilation air comfortably</li> </ul>
Dehumidistat is not operating	<ul style="list-style-type: none"> <li>• Outdoor temperature is above 15°C (59°F)</li> <li>• Improper low voltage connection</li> <li>• External low voltage is shortened out by a staple or nail</li> <li>• Check dehumidistat setting it may be on OFF</li> </ul>	<ul style="list-style-type: none"> <li>• Dehumidistat is functioning normally (see Auto Dehumidistat Disable in this manual)</li> <li>• Check that the correct terminals have been used</li> <li>• Check external wiring for a short</li> <li>• Set the dehumidistat at the desired setting</li> </ul>
Humidity levels are too high condensation is appearing on the windows	<ul style="list-style-type: none"> <li>• Dehumidistat is set too high</li> <li>• HRV is not sized to handle a hot tub, indoor pool etc.</li> <li>• Lifestyle of the occupants Moisture coming into the home from an unvented or unheated crawl space</li> <li>• Moisture is remaining in the washroom and kitchen areas</li> <li>• Condensation seems to form in the spring and fall</li> <li>• HRV is set at too low a speed</li> </ul>	<ul style="list-style-type: none"> <li>• Set dehumidistat lower</li> <li>• Cover pools, hot tubs when they are not in use</li> <li>• Avoid hanging clothes to dry, storing wood and venting clothes dryer inside. Firewood may have to be moved outside</li> <li>• Vent crawl space and place a vapor barrier on the floor of the crawl space</li> <li>• Ducts from the washroom should be sized to remove moist air as effectively as possible, use of a bathroom fan for short periods will remove additional moisture</li> <li>• On humid days, as the seasons change, some condensation may appear, but the homes air quality will remain high with some HRV use Increase speed of the HRV</li> </ul>

### 33 TROUBLESHOOTING

Refer to the following table for troubleshooting the HRV unit.

**Table 17.1 – Troubleshooting Procedures (cont.)**

SYMPTOM	CAUSE	SOLUTION
Humidity levels are too low	<ul style="list-style-type: none"> <li>Dehumidistat control set too low</li> <li>Blower speed of HRV is too high</li> <li>Lifestyle of occupants</li> <li>HRV airflows may be improperly balanced</li> </ul>	<ul style="list-style-type: none"> <li>Set dehumidistat higher</li> <li>Decrease HRV blower speed</li> <li>Humidity may have to be added using humidifiers</li> <li>Have contractor balance HRV airflows</li> </ul>
HRV and/or ducts frosting up	<ul style="list-style-type: none"> <li>HRV airflows are improperly balanced</li> <li>Malfunction of the HRV defrost system</li> </ul>	<div>  <b>Note</b> <ul style="list-style-type: none"> <li>Minimal frost build-up is expected on cores before unit initiates defrost cycle functions</li> </ul> </div> <ul style="list-style-type: none"> <li>Have HVAC contractor balance the HRV</li> <li>Ensure damper defrost is operating during self-test</li> </ul>
Condensation or ice buildup in insulated duct to the outside	<ul style="list-style-type: none"> <li>Incomplete vapor barrier around insulated duct</li> <li>A hole or tear in outer duct covering</li> </ul>	<ul style="list-style-type: none"> <li>Tape and seal all joints</li> <li>Tape any holes or tears made in the outer duct cover, ensure that the vapor barrier is completely sealed.</li> </ul>
Excess water in the bottom of the HRV	<ul style="list-style-type: none"> <li>Drain pans plugged</li> <li>Improper connection of HRV's drain lines</li> <li>HRV is not level</li> <li>Drain lines are obstructed</li> <li>HRV heat exchange core is not properly installed</li> </ul>	<ul style="list-style-type: none"> <li>Look for obstructions in the drain line</li> <li>Look for kinks in the drain line</li> </ul>
Excessive Vibration	<ul style="list-style-type: none"> <li>Dirt on fan wheels</li> </ul>	<ul style="list-style-type: none"> <li>Have contractor service HRV</li> </ul>